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EFFECT OF CERTAIN LIVER EXTRACTS ON THE BLOOD SUGAR OF DIABETIC PATIENTS *

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AND
WILLIAM P. MURPHY, M.D.
BOSTON

Our previous work [1] on the effect of liver on the blood sugar suggested that liver contains a blood sugar reducing substance, active when taken by mouth, nontoxic and with an effect on the blood sugar concentration similar to that obtained with insulin, and that the feeding of liver over a period of time has clinical value in the treatment of diabetes mellitus. Such data naturally raised the question of the nature of the substance which is thus effective when included in the diabetic diet. An attempt was made, therefore, to isolate certain liver fractions which, when taken orally, would have an effect on the blood sugar level as does liver. In this paper are reported observations on the effect of the oral administration of certain liver extracts on the blood sugar levels in twenty-three cases of diabetes mellitus.

REVIEW OF THE LITERATURE

There have appeared in the French literature several publications concerning the beneficial effect of liver extracts in the treatment of diabetes by Gilbert and Carnot,[2] Jousset,[3] Lamoureaux,[4] Gilbert and Lereboullet [5] and Lassance.[6] These authors experimented with aqueous, alcoholic, glycerin and saline extracts of liver in a number of cases of diabetes mellitus. In general, their conclusions were much alike. They observed that the oral administration of liver extracts had an appreciable influence on the glycosuria in a number of diabetic patients, but the effect varied according to the case. Sometimes hepatotherapy caused a diminution or disappearance of the glycosuria, while at other times it had no influence or even increased the glycosuria. The effect of the substance was prolonged over a variable period of time after cessation of the treatment. The results obtained with partial extracts of liver were inferior to those with the total extract.

These investigators felt that the cases which were influenced favorably by liver extract therapy were those associated with a functional insufficiency of the liver, while the cases which did not show improvement or even were made worse by the treatment were those in which the glycosuria depended on a hyperactivity of the liver. Lamoureaux [4] explained the mode of action of the hepatic extract on the basis that this substance caused a greater accumulation of glycogen in the liver, or that it acted on the whole organism, resulting in a more rapid destruction of the sugar.

From the literature it is apparent that liver extracts have been used as a means of treating diabetes. Usually the improvement in the clinical condition of the patient and the reduction of the amount of sugar in the urine have been used as criteria in estimating its effect. In spite of apparently satisfactory results in many cases, liver extracts have been little used in the treatment of diabetes.

PROCEDURE

The observations on the diabetic patients reported here were made according to the following method: The blood sugar concentration was determined in a morning fasting specimen, and usually three, five and eight hours following the ingestion of a uniform test meal, containing 20 Gm. of carbohydrate, 40 Gm. of protein and 35 Gm. of fat, the protein being supplied largely in the form of red muscle meat. This was known as the control test meal. On another day the blood sugar levels were determined at the same intervals with the same test meal as in the control, but in addition to this the liver extracts were added, which increased the total amount of carbohydrate and protein. When whole liver was used, it was included in the test meal, so that the total amount of carbohydrate, protein and fat was identical in amount with the control meal. The liver extracts were made from calf's liver. The blood sugar determinations were made on 2 cc. blood samples according to the method of Folin and Wu.[7] At least one day intervened between tests. The five hour blood sugar determination has been omitted in the later experiments, because this was usually somewhere between the three hour and the final blood sugar.

PREPARATION OF LIVER EXTRACTS

An aqueous extract of liver was the first one that was made. It was prepared by adding to 1 pound of raw liver pulp [8] enough water at a temperature of from

* From the Medical Service of the Peter Bent Brigham Hospital.

* This study was aided by a grant from the Proctor Fund of the Harvard University Medical School for the study of chronic disease.

1. Blotner, Harry; and Murphy, W. P.: The Effect of Liver on the Blood Sugar Level, J. A. M. A. **92**:1332 (April 20) 1929. Blotner, Harry: The Effect of Liver on the Blood Sugar in Diabetic Patients, J. Am. Dietet. A. **5**: 102 (Sept.) 1929.

2. Gilbert, A., and Carnot, P.: Essais d'opothérapie hépatique, Sem. méd. **16**: 480, 1896; Note préliminaire sur l'opothérapie hépatique, Presse méd., 1896, number 97, p. 422; Action des extraits hépatique sur la glycosurie expérimentale, Sem. méd. **16**: 513, 1896; De l'opothérapie hépatique dans le diabète sucre, ibid. **17**: 189, 1897; Etuidient l'opothérapie hépatique dans le diabète sucre, Gaz. d. hôp., 1900, number 94, p. 995.

3. Jousset, M.: Opothérapie hépatique, Presse méd., 1896, number 99, p. 432.

4. Lamoureaux, F.: De l'opothérapie hépatique dans le diabète sucre, Paris thesis 659, 1897-1898.

5. Gilbert, A., and Lereboullet, P.: Les opothérapies dans le diabète sucre, Gaz. hebd. de med., 1901, number 81, p. 963.

6. Lassance, V.: Les opothérapies dans le diabète sucre, Paris thesis 394, 1905.

7. Folin, Otto; and Wu, Hsien: A System of Blood Analysis: Supplement 1. A Simplified and Improved Method for Determination of Sugar, J. Biol. Chem. **41**: 367 (March) 1920.

8. Tubbs, T., and Bellinger, E.: Adjusting the Diet to the Patient with Pernicious Anemia, J. Am. Dietet. A. **3**: 7 (June) 1927.

35 to 40 C. to make the total quantity 1,100 cc. with a p_H of from 4.6 to 5.2.[9] This then was mixed and centrifugated. The supernatant fluid, which usually amounted to about 500 cc., represented the aqueous extract, which was tested on diabetic patients and was found to contain a blood sugar reducing substance. The residue apparently was ineffective in lowering the blood sugar. Characteristic blood sugar curves obtained in this group are shown in chart 1 *A*.

The next process, naturally, was to concentrate the aqueous extract so that there would be a small quantity of material which could be taken more easily by the patient. This was accomplished by evaporating the aqueous extract in an oven at from 70 to 80 C. to varying degrees of dryness. At first, the aqueous extract was evaporated down to a paste. About 75 Gm. of the paste was obtained from 1 pound of raw liver pulp. This apparently was as effective as the aqueous extract in lowering the blood sugar. Blood sugar curves characteristic of this group are shown in chart 1 *B*.

An attempt was made to fraction the aqueous extract. The aqueous extract was heated to 80 C. for several minutes until a precipitate formed. This was then cooled and strained. The effect of the precipitate and of the fluid portion was tested separately on diabetic patients. The precipitate apparently had an effect on the blood sugar level similar to that obtained with aqueous extract as shown in chart 1 *D*, while the fluid portion contained little if any blood sugar reducing substance. In these extracts the precipitate contained only the slightest possible trace of sugar, while the fluid portion (from 250 to 400 cc.) contained practically all of the sugar (from 0.7 to 6 per cent) that was originally contained in the liver. Such a process then would seem desirable in getting rid of the sugar in the extracts.

BLOOD SUGAR CURVES

The record of the blood sugar determinations in nineteen diabetic patients that were fed the effective extracts is given in the accompanying table; their effects

*Diabetic Patients**

	Blood Sugar Levels in Patients Receiving Control Test Meal					Blood Sugar Levels in Patients Receiving Test Meal and Liver Extracts					Blood Sugar Levels in Patients Receiving Test Meal and 10 Units of Insulin				
		Hours After Test Meal					Hours After Test Meal					Hours After Test Meal			
Cases	Fasting	6	5	8	Change in Blood Sugar in 8 Hours, Mg.	Fasting	3	5	8	Decrease in Blood Sugar in 8 Hours, Mg.	Fasting	3	5	8	Decrease in Blood Sugar in 8 Hours, Mg.
						Aqueous Extract									
1.....	242	233	230	200	— 42	252	208	215	163	— 89	258	222	219	174	— 84
2.....	174	187	185	165	— 9	270	140	131	113	—157					
						Paste Extract									
3.....	280	307	333	267	— 13	230	280	230	220	— 60	235	194	...	210	— 25
4.....	133	235	174	116	— 17	143	154	149	87	— 56					
5.....	135	127	...	117	— 18	163	140	...	100	— 63	133	114	...	110	— 23
6.....	140	154	...	151	+ 11	170	106	120	130	— 40					
7.....	280	260	...	226	— 54	340	280	...	195	—145	263	203	...	171	— 92
8.....	254	294	274	214	— 40	250	200	180	151	— 99					
9.....	230	180	...	154	— 76	216	170	...	140	— 76					
						Powdered Extract									
10.....	174	153	150	136	— 38	185	145	133	108	— 77	162	107	122	115	— 47
11.....	120	100	120	100	— 20	121	89	95	70	— 51					
12.....	161	161	161	142	— 19	200	177	170	132	— 68	181	120	120	123	— 58
13.....	288	300	312	245	— 43	353	274	278	241	— 92					
						Precipitated Extract									
14.....	244	242	...	200	— 44	320	261	...	210	—110	281	203	...	181	—100
15.....	206	194	...	193	— 13	220	180	...	163	— 57	178	142	...	131	— 47
16.....	278	292	...	267	— 11	260	240	...	218	— 42	270	257	...	214	— 56
17.....	221	235	...	187	— 34	207	196	...	143	— 64	212	176	...	127	— 85
18.....	192	202	...	136	— 56	215	215	...	131	— 84	200	174	...	128	— 72
19.....	261	290	...	229	— 32	293	293	...	216	— 77	250	143	...	124	—126
Average decrease in blood sugar in 8 hours					32.2					79.8					67.9

* The blood sugar concentration was recorded in milligrams per hundred cubic centimeters of blood. In all the cases the extracts were made from 480 Gm. of liver pulp except in cases 1, 4, 6 and 11, in which the amounts were 180 Gm., 240 Gm., 360 Gm. and 360 Gm., respectively

Then the aqueous extract was evaporated down to a powder, so that about 40 Gm. of this substance represented 1 pound of raw liver pulp. This also was as effective as the aqueous extract in lowering the blood sugar. Characteristic blood sugar curves of this group are shown in chart 1 *C*.

The extracts were exposed to varying degrees of heat to determine the effect of this agent on the blood sugar reducing substance. Heat ranging from 45 to 80 C. did not seem to destroy the active principle, but heat at from 100 to 120 C. apparently did render the extract less effective.

An analysis of 36 Gm. of powdered extract, which was the equivalent of 1 pound of liver pulp, showed the following: p_H, from 4.6 to 5.2 per cent; sugar reducing substance, from 11 to 15 per cent; nonprotein nitrogen, 1.7 per cent; total protein, 47 per cent; ash, 6.2 per cent; iron, 3.3 per cent.

9. Clark, W. N.: The Determination of Hydrogen Ions, 1927, p. 81.

were all much alike. The amount of the extract given was usually the equivalent of 480 Gm. of raw liver pulp.

In these patients, the blood sugar level eight hours after the control test meal varied from 11 mg. above to 76 mg. below the fasting blood sugar level, the average drop in the blood sugar concentration during this period for the eighteen cases being 32.2 mg.

The blood sugar curves obtained after the administration of the test meal with the addition of the extracts were quite different. There was a fall in the blood sugar concentration, which varied from 40 to 157 mg.; the average fall amounted to 79.8 mg. below the fasting blood sugar level. Blood sugar curves characteristic of this group are shown in chart 1.

Three hours following the control test meal, ten of the nineteen patients showed an increase in the blood sugar varying from 10 to 102 mg., or an average increase of 28.4 mg.; eight showed a decrease of from

2 to 50 mg., or an average decrease of 17.3 mg., while one patient showed no change. In contrast to this, three hours following the test meal with the liver extracts, fourteen of the patients showed a decrease in blood sugar, varying from 11 to 130 mg., or an average decrease of 41 mg., while only two patients showed an increase of 11 mg. and 20 mg., and three patients showed no change.

RELATIVE EFFECTS OF INSULIN AND OF LIVER EXTRACTS

A comparison was made of the relative effects of insulin and of the various liver extracts on the blood sugar in twelve cases. The blood sugar determinations were made at the same time intervals as in the previous experiments. In the experiments with insulin, the desired dose was injected subcutaneously, following which the control test meal was given. The experiments were conducted within a few days of one another.

In the first case, 10 units of insulin was injected and its effect compared with that of an aqueous extract of liver, the equivalent of 180 Gm. of liver pulp. The resulting blood sugar curves are shown in chart 2. In this case the aqueous extract caused as marked a

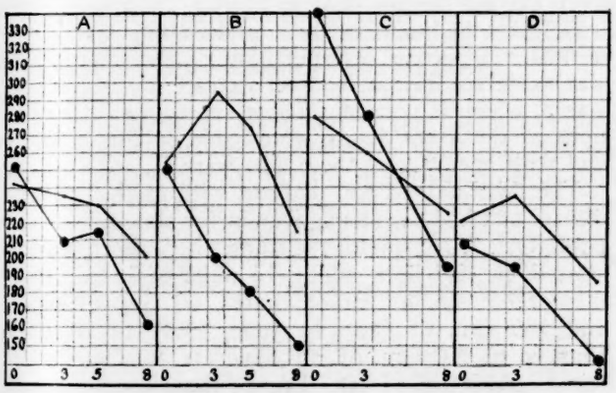

Chart 1.—Characteristic blood sugar curves obtained in diabetic patients on a control test meal of carbohydrate 20 Gm., protein 40 Gm., fat 35 Gm. (no liver extracts), and the same test meal with the addition of the various liver extracts: *A*, aqueous liver extract; *B*, liver extract paste; *C*, liver extract powder; *D*, precipitated liver extract. The heavy line with black dots represents the patient receiving these various extracts; the plain line represents the control. In all the charts the blood sugar is recorded in milligrams per hundred cubic centimeters of blood. Except in charts 6 and 7 the time interval is recorded in hours.

decrease in the blood sugar level at the end of eight hours as did 10 units of insulin.

In the second group of three cases, 10 units of insulin was injected and its effect compared with that of the paste extract, which was the equivalent of 480 Gm. of liver pulp. An example of the blood sugar curves obtained in this group is shown in chart 3. In this case the paste liver extract caused a greater drop in the blood sugar in eight hours than did 10 units of insulin.

In the third group of two cases, 10 units of insulin was injected and its effect compared with that of the powdered extract, which was the equivalent of 480 Gm. of liver pulp. An illustration of the blood sugar curves obtained in such a case is shown in chart 4. In this case the powdered extract also caused a slightly greater decrease in the blood sugar in eight hours than did 10 units of insulin.

In the fourth group of cases, 10 units of insulin was injected and its effect compared with that of the precipitated liver extract, which was the equivalent of 480 Gm. of liver. An illustration of the blood sugar curves obtained is shown in chart 5. In this group of six cases the average drop in the blood sugar eight hours following the injection of the insulin was 81 mg., while the average corresponding blood sugar following the liver extract was 72.3 mg.

The record of the blood sugar determinations in twelve diabetic patients that were each given 10 units of insulin

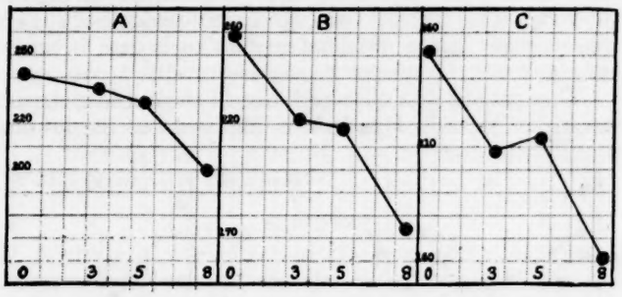

Chart 2.—Relative effects of insulin, 10 units, and of an aqueous liver extract, the equivalent of 180 Gm. of liver, in A. C., a man with diabetes: *A*, no liver extract; *B*, insulin, 10 units;; *C*, aqueous liver extract. In all three tests the diet was the same: carbohydrate 20, protein 40 and fat 35.

is also given in the table. In these cases there was a fall in the blood sugar concentration in eight hours which varied from 23 to 126 mg.; the average decrease amounted to 67.9 mg. below the fasting blood sugar level. In these twelve cases the average drop eight hours following the control meal was 31.1 mg. and, following the test meal plus liver extracts, 78 mg.

Three hours following the test meal with insulin, all of the twelve patients showed a drop in blood sugar varying from 13 to 107 mg., or an average decrease of 47.3 mg. Three hours after the ingestion of the liver extracts, eight of these patients showed a decrease in blood sugar varying from 11 to 60 mg., or an average decrease of 37.5 mg., while one patient had an increase of 20 mg., and three patients had no change.

PROLONGED USE OF LIVER EXTRACTS

As the result of the previous experiments, it is reasonable to conclude that aqueous extracts of liver contain a blood sugar reducing substance. An attempt

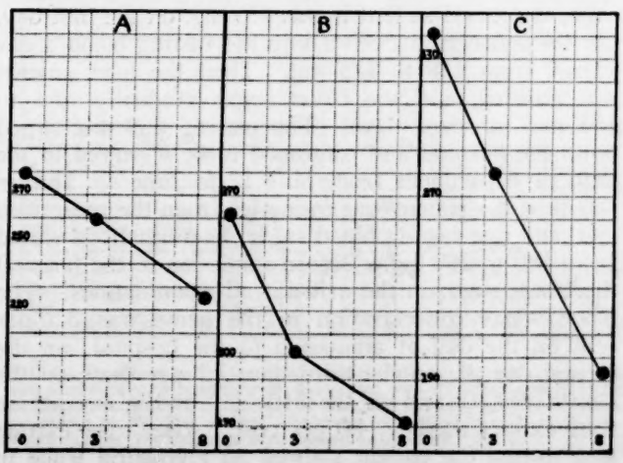

Chart 3.—Relative effect of insulin, 10 units, and of a liver extract paste, the equivalent of 480 Gm. of liver, in Mrs. A. W., a patient with diabetes: *A*, no liver extract; *B*, insulin, 10 units;; *C*, liver extract paste. In all three tests the diet was the same: carbohydrate 20, protein 40 and fat 35.

was made to determine whether or not this fact can be made of clinical value in the treatment of diabetes. Four diabetic patients were given liver extracts each day over a varying period of time to observe this phase of the problem.

These patients on admission to the hospital were maintained on a constant diet containing no liver extracts. The fasting blood sugar was determined frequently. When it was felt that the blood sugar had reached a fairly constant level, the liver extract was added to the diet, so that the total amount of carbohydrate and protein was increased somewhat during this period. The extract was given in two doses. The blood sugar curve obtained in one such case is shown in chart 6.

This patient was observed first in the outdoor department for sixteen days before admission to the hospital

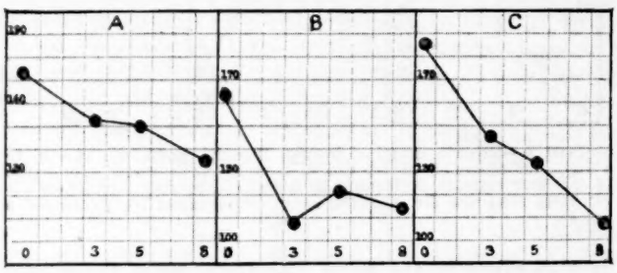

Chart 4.—Effect of insulin, 10 units, and of a powdered liver extract, the equivalent of 480 Gm. of liver, in G. H., a man with diabetes: *A*, no liver extract; *B*, insulin, 10 units; *C*, powdered liver extract. In all three tests the diet was: carbohydrate 20, protein 40 and fat 35.

on a diet containing 70 Gm. of carbohydrate, 60 Gm. of protein and 120 Gm. of fat. Frequent fasting blood sugar determinations made during this time showed varying levels from 222 to 265 mg. The patient then was admitted to a ward in the hospital and was placed on a constant diet containing 120 Gm. of carbohydrate, 80 Gm. of protein and 130 Gm. of fat. On admission the blood sugar level was 270 mg. On the following day the fasting blood sugar level was 260 mg. On the subsequent four days the fasting blood sugar level varied from 210 to 224 mg. On the sixth day of the patient's stay in the hospital when the fasting blood sugar level was 210 mg., an aqueous extract of liver, which was given morning and night and was the equivalent of 300 Gm. of liver, was added to the diet. The blood sugar decreased so that it was 155 mg. on the first day. On the subsequent twelve days the fasting blood sugar varied from 158 to 125 mg. Then the liver extract was omitted, and the blood sugar gradually rose to 185 mg. in seven days. The patient was discharged from the hospital and continued to be observed in the outdoor department from May 12 to June 4. During this time the patient was eating less than the prescribed diet, and five fasting blood sugar determinations varied from 180 to 200 mg. Before admission to the hospital there was sugar in the urine at all examinations. The blood sugar concentration in the urine was 3.3 per cent on the day of admission to the hospital; on the second day, 0; on the third day, 1.1 per cent; on the fourth day, 0, and on the fifth day or the day before liver extract therapy, 4.0 per cent. After liver extract was started the patient showed no glycosuria while in the hospital.

Chart 7 shows the blood sugar curve of a second diabetic patient before an aqueous liver extract was taken and subsequently with insulin. This patient was given a diet containing 120 Gm. of carbohydrate, 60 Gm. of protein and 120 Gm. of fat without any liver extract for seven days, during which time the blood sugar concentration varied from 253 to 215 mg., while the daily sugar excretion in the urine varied from 120 to 45 Gm. An aqueous extract of liver, which was the equivalent of 400 Gm. of liver, then was added to the diet for sixteen days. This was divided into two doses of 200 Gm. each, given before breakfast and supper. The blood sugar decreased and remained chiefly at a level of from 160 to 172 mg. During this time the sugar in the urine decreased considerably and amounted to about 10 Gm. daily up to the fourteenth day, when the glycosuria disappeared, but reappeared only very slightly for the following two days. The liver extract then was omitted and for the subsequent five days 7 units of insulin was injected subcutaneously before breakfast and supper with the diet remaining constant. During this period the blood sugar level was slightly lower and varied from 145 to 168 mg., while the urine continued to show a slight trace of sugar for three days and no sugar for the last two days.

Nonprotein nitrogen determinations were made on the fasting blood sugar on five occasions before and during liver extract therapy and during treatment with insulin. All of these varied from 27 to 30 mg. per hundred cubic centimeters of blood.

A study also was made of the icteric index in this case which proved to be interesting. On the day before liver extract therapy was instituted, the icteric index was found to be 20,[10] which is definitely higher than normal. A second determination of the icteric index was made six days after liver extract was started and was 5, which is normal. Three subsequent determinations of the icteric index were made on this treatment and with insulin, and these also were 5.

The third patient had diabetes with marked vascular disease and had been using insulin for almost five years. From Oct. 7, 1925, until the studies here described were started, he had been taking 13 units of insulin and a diet of 65 Gm. of carbohydrates, 60 Gm. of protein and 160 Gm. of fat. In June, 1928, the diet was changed to 100 Gm. of carbohydrate, 80 Gm. of protein and 100 Gm. of fat. During these years the sugar in the urine varied from 0 to a trace.

He was readmitted to the hospital, Sept. 18, 1928, with the complaint of severe pain on the right side of the body from the shoulder down to the toes. A diet of 100 Gm. of carbohydrate, 80 Gm. of protein, 100

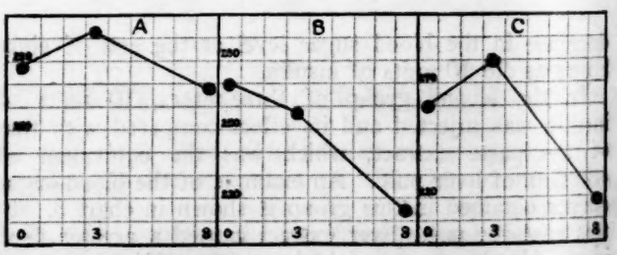

Chart 5.—Comparison of effects of insulin, 10 units, and of a liver extract precipitated by heat, the equivalent of 480 Gm. of liver, in Mrs. A. P., a patient with diabetes: *A*, no liver extract; *B*, insulin, 10 units; *C*, precipitated liver extract. In all three tests the diet was: carbohydrate 20, protein 40 and fat 35.

Gm. of fat and 13 units of insulin daily was started. For twenty-one days the daily fasting blood sugar usually varied from 165 to 175 mg., and occasionally it was as high as 187 mg. The urinary sugar varied from 0 to a slight trace. Then the insulin was omitted and and aqueous extract of liver, the equivalent of 300 Gm. of liver pulp, was added. This was divided into two equal doses and given morning and night for the

10. Murphy, W. P.: Biliary System Function Tests, Arch. Int. Med. 37: 797 (June) 1926.

subsequent ten days. During this time the fasting blood sugar usually varied from 175 to 210 mg., the last blood sugar being 190 mg. The sugar in the urine varied from 0 to a trace.

The patient suffered considerable pain during his stay in the hospital, especially in the last ten days. He was given sedatives daily, such as barbital, trional and codeine. The doses were larger in the last ten days, because of the greater amount of pain. He was discharged, Oct. 19, 1928, to continue the same diet and with 13 units of insulin.

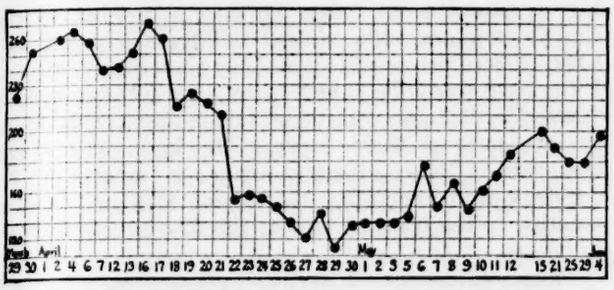

Chart 6.—Blood sugar curve before and after diet with an aqueous liver extract in A. C., a man with diabetes, on a daily diet of carbohydrate 120 Gm., protein 80 Gm., and fat 130 Gm. The patient was admitted to the hospital, April 16, and discharged, May 12. During that time he was fed liver extract equivalent to 300 Gm. of liver from April 21 to May 3. After May 3, the liver extract was omitted.

On a subsequent admission to the hospital, July 3, 1929, the patient was observed for ten days. He was given the same diet of 100 Gm. of carbohydrate, 80 Gm. of protein, 100 Gm. of fat and 15 units of insulin daily. The fasting blood sugar levels on three occasions were 181 mg., 171 mg., and 198 mg., on the last day. The sugar concentration in the urine varied from 0 to a very slight trace.

The fourth patient was a diabetic girl, aged 12, who had been taking insulin for four years. She was first observed at this hospital from Dec. 26, 1928, to Feb. 3, 1929. During this period she was given usually 35 units of insulin daily, and the blood sugar level varied from 168 to 540 mg. on discharge. Sugar appeared in the urine almost daily in amounts varying from 5 to 75 Gm. She was discharged to take 40 units of insulin daily and a diet of 125 Gm. of carbohydrate, 60 Gm. of protein and 75 Gm. of fat. Subsequently she had frequent insulin reactions, so much so that her mother had to watch her almost all of every night. The urinary sugar varied from one extreme to the other.

She was observed again at this hospital from July 24, 1929, to Sept. 24, 1929, because of the insulin reactions. She was given a diet of 150 Gm. of carbohydrate, 60 Gm. of protein and 75 Gm. of fat, and an average of 45 units of insulin daily for these two months. From July 24 to August 13, the blood sugar usually varied from 294 mg. to 475 mg., and the insulin was given three and occasionally four times a day. From August 13 to August 28, the same amount of insulin was given thrice daily at first, then twice daily, and also an aqueous extract of liver, the equivalent of 480 Gm. of liver pulp. During this period the blood sugar usually varied from 255 to 320 mg. From August 28 to September 9, the extract was omitted, and the blood sugar usually varied from 244 to 360 mg. The extract was resumed again from September 9 to September 24. The blood sugar usually varied from 215 to 360 mg., and apparently it was more stabilized. During the periods in which the liver extract was taken, the urine was sugar-free more of the time than previously, and on the whole there was less sugar excreted.

Following this discharge from the hospital the patient continued the same regimen, taking 45 units of insulin daily and an aqueous extract of liver prepared at home, the equivalent of 480 Gm. of liver. Observations were made in the outdoor department for three months, during which period the urine was sugar-free most of the time at home. When sugar did appear in the urine it occurred only in very small amounts. She felt much better generally. The insulin reactions had disappeared, thereby giving her mother a comfortable night of sleep. The liver extract apparently was an important factor in stabilizing the patient.

SUMMARY

A study of the effect of the oral administration of certain liver extracts on the blood sugar of twenty-three diabetic patients indicates that they had a beneficial effect on the blood sugar of these patients.

These extracts were prepared by making an aqueous extraction of calf's liver at from 35 to 40 C. at a p_H of from 4.6 to 5.2, and then evaporating and precipitating this aqueous extract at certain temperatures to varying degrees of dryness according to the method given in this paper.

The average decrease in the blood sugar eight hours after the control test meal in eighteen out of nineteen diabetic patients was 32.2 mg.; the average decrease eight hours following the test meal with the addition of the liver extracts was 79.8 mg. in these cases; while the average decrease in the twelve diabetic patients that were given the test meal and 10 units of insulin subcutaneously was 67.9 mg. for the same period of time.

Four patients with diabetes taking an aqueous extract have been observed with repeated fasting blood sugar determinations for sixty-eight days, twenty-nine days, thirty-one days and five months, respectively. In the first case the blood sugar remained at a lower level when the liver extract was taken, and then increased when it was omitted. In the second case the blood sugar was also at a lower level during liver extract therapy than previously, and when 7 units of insulin was injected subcutaneously twice a day the blood sugar level was slightly lower than during the period of liver extract therapy. In the third case the blood sugar level during liver extract therapy was at a slightly higher level than during the period when 13 units of insulin was taken. This may have been affected by the use of increased sedatives during this time. In the fourth case the blood sugar was stabilized by the liver extract, and the urinary sugar was decreased.

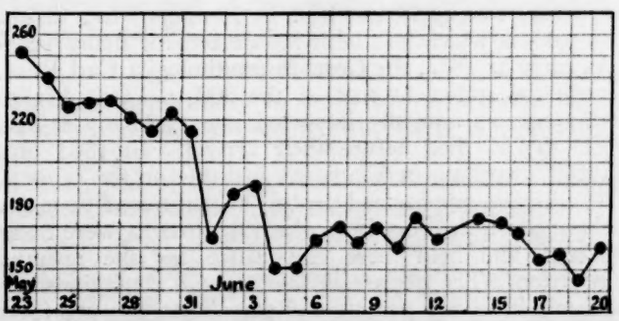

Chart 7.—Blood sugar curve before diet with an aqueous liver extract and afterward with insulin in M. L., a man with diabetes, on a daily diet of carbohydrate 120 Gm., protein 60 Gm., and fat 120 Gm. Liver extract equivalent to 400 Gm. of liver was given from May 30 to June 15, after which insulin, 7 units, was administered twice daily.

These observations suggest that certain aqueous liver extracts contain a blood sugar reducing substance, active when taken by mouth, nontoxic and with an effect on the blood sugar concentration similar to that obtained with small doses of insulin, especially over a period of eight hours.

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PSITTACOSIS

A REPORT OF FIVE CASES *

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This communication deals with the description of five cases of acute infectious disease, all occurring within a relatively short period among the members of a single household into which there had recently been brought a sick parrot. A clinical picture characteristic either of influenzal pneumonia or of typhoid was present in all the patients. A report of this house epidemic is deemed worthy of record at this time because of the unusual interest and publicity attached to the cases of psittacosis recently described in various parts of this country and Europe by the lay press, and because in this instance a careful clinical, bacteriologic and epidemiologic study was made.

This comprehensive investigation was made possible through the cooperation of the laboratory of the New York State Department of Health and the division devoted to epidemiology. Although numerous epidemics of psittacosis have been described previously in France and Germany, the disease has been practically unknown in the United States until recently. Only three references to it can be found in American medical literature.

HISTORICAL REVIEW

The term psittacosis from the Greek word ψιττακός (parrot) was applied in 1895 by Morange [1] to a disease of parrots which had been recognized for many years. As early as 1877, the German ornithologist Carl Russ [2] made the statement that of the 800 to 1,000 African gray parrots annually imported into Germany at least 600 to 750 died before their arrival. In 1883 Max Wolff,[3] working in Virchow's institute on the cause of this disease, emphasized the bad hygienic conditions that obtained on the vessels in which the parrots were transported, and held these responsible for the resulting infection. The disease is said to be a contagious septicemia involving parrots and parrakeets, causing fever, weakness, stupor and diarrhea.[4] The affected bird sits huddled up, the eyes closed, the feathers ruffled out, the head turned on the shoulder. Anorexia, shivering and frothy greenish droppings are common symptoms. The bird is weak and usually avoids the perch. Convulsions occur before death. In the chronic cases respiratory symptoms such as coryza, coughing, snuffling and panting respiration are present. The postmortem changes are those of enteritis with areas of bronchopneumonia.

In 1880 Eberth [5] and in 1883 Wolff [3] found numerous micrococci in the blood and organs of parrots that had died of the disease. Wolff issued a warning that diseased parrots might be a potent source of human infection, but his statement received no serious consideration, although Ritter [6] in 1879 had already suggested the possibility on clinical grounds. He described seven cases of rather severe atypical pneumonia, under the title pneumotyphus, occuring in Uster, Switzerland. Five patients were taken ill within five days with similar symptoms; two others fell ill from six to ten days later. Three persons died, autopsy showing pneumonia. Ritter attributed the infection to a recent shipment of "exotic birds," and considered it due not directly to the parrots but to their cages. He laid the greatest emphasis on the sudden and explosive character of the outbreak and concluded that there was no evidence pointing to the transmission of the disease from person to person.

House epidemics of atypical pneumonia have been described in many parts of the world for at least fifty years, but Ritter in 1879 was the first to suggest the possibility of the connection between such an outbreak and the presence of a sick parrot in the household.

In 1882, Ost [7] of Bern reported four similar cases that developed fourteen days after the arrival of a parrot in the household. There were two deaths. Wagner [8] in Leipzig made like observations in the same year and again in 1886.

In 1888, Finkler [9] described an unusual house epidemic of pneumonia in Bonn affecting six persons, three of whom died. He cultivated streptococci in all the cases and considered the outbreak an instance of a highly contagious type of pneumonia. No significance was attached to the fact that there were parrots in the house, although even at this time in tropical countries human infection from diseased parrots was not unknown.

In December, 1891, two French merchants, Marion and DuBois, purchased 500 parrots at Buenos Aires and shipped them to Paris.[10] During the voyage 300 of the parrots died, and in February, 1892, when the two men divided their importation, each received only 100 parrots. Marion took his share of the allotment to his brother's house. From this focus twenty-six cases of illness with eight deaths developed. DuBois took up his residence elsewhere, and to his parrots twenty-three cases and eight deaths were traced. The Paris epidemic of psittacosis of 1892, which is the largest one that has occurred, comprised, therefore, forty-nine cases with sixteen deaths. The next year in Paris there were seven cases with five deaths; in 1894, two cases, in both of which recovery took place, and in 1895-1896, twelve cases with three deaths.

In 1893 Nocard,[10] having in vain tried to obtain some sick or dead parrots from the Marion-DuBois importation, succeeded in getting a large number of wings from

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* From the Department of Medicine, Albany Medical College, Union University.

* Read before the Albany County Medical Society, Feb. 18, 1930, and before the Buffalo Academy of Medicine, March 12, 1930.

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10. Nocard, E. I. E., in discussion at Conseil de la Salubrité de la Seine, Ann. d'hyg. pub. **29**: 481, 483, 1893.

parrots that had died during the voyage. From the bone marrow of these dried wings he repeatedly isolated a gram-negative organism possessing the characteristics of the paratyphoid group. It was found to be highly virulent for animals, killing parrots, pigeons, chickens, mice, rabbits and guinea-pigs within forty-eight hours.

In the winter of 1894-1895, house epidemics of a severe and atypical pneumonia developed in Florence and the nearby town of Ponto. Malenchini [11] and Palamidessi [12] described these as attacking several members of the same family within a few days and in rare instances apparently spreading from one person to another. At first no apparent cause was found for these cases, but later it was discovered that in many instances freshly imported sick parrots from America had recently been introduced into the affected homes.

In 1896, Gilbert and Fournier [13] reported five cases of psittacosis, with two deaths. From the heart's blood in one of these, Nocard's bacillus was grown in pure culture, although numerous attempts to obtain this organism during life had failed. The chain of evidence then seemed to be complete for establishing Nocard's bacillus as the cause of the disease in parrots and in man, although resting on very meager evidence.

In December, 1896, at Stettin, four cases with one death occurred in one house, described by Haedeke [14] as sputumless pneumonia. A green parrot recently imported from Brazil and ill with profuse watery diarrhea was held responsible. Careful bacteriologic examinations were made and streptococci and *B. proteus* were recovered from the parrot.

In 1898 in Bernay (northern France), seven cases clinically characteristic of psittacosis occurred in a single household of eight members, four of whom died. Those who succumbed showed definite signs of pneumonia, while those who recovered suffered only from a fetid diarrhea. A sick parrot had been received in the house about two weeks before the outbreak. Professor Nicolle [15] of Rouen examined the sputum, blood and feces of some of the patients. He could not recover the bacillus of Nocard. However, Nicolle did find that in two cases the patient's serum agglutinated suspensions of the Nocard bacillus in dilutions of 1:50 and 1:60.

Leichtenstern [16] made a most exhaustive and comprehensive review of all the literature up to 1899. He reported two house epidemics in Cologne in 1898, the first consisting of ten cases with four deaths, the second of eight cases with one death. He was unable to find the bacillus of Nocard. While admitting the possibility or even the probability that sick parrots may transmit an infectious disease to man, Leichtenstern insists that up to the time of his communication convincing proof of this transference has not been furnished on epidemiologic, clinical or, most of all, bacteriologic grounds. He reports similar house epidemics of atypical pneumonia in which no parrot was present. He feels, however, that the experience of the great Paris epidemic prevents one from jumping to the conclusion that all so-called psittacosis epidemics were merely house epidemics of pneumonia in which the presence of a sick parrot was a coincidence.

In the United States and England there have been no large epidemics of psittacosis reported up to the present time. Vickery and Richardson [17] of Boston described three probable cases in 1904, with no deaths; McClintock [18] has given an account of a series of cases occurring in 1917 in Wilkes-Barre which have been questioned,[19] and Sailer [20] of Philadelphia published in 1929 the data of a single case in which the patient recovered. The English medical literature reveals two cases reported by Beddoes [21] in 1914, with one death; two by Gulland [22] in 1924, with one death; two by Stolkind [23] in 1927, with one death, and four by Thomson [24] in 1929, with two deaths. All these observers both here and in England failed to find Nocard's bacillus, excepting Thomson,[24] who obtained an organism closely resembling it from the inflamed paratoid gland of one of his patients.

Since the foregoing was written we find that quite recently two additional contributions have been made on psittacosis. Thomson and Hillier [25] report seventeen further cases from England with three deaths. They would not dismiss Nocard's bacillus as the possible cause without further study. *B. psittacosis* was not isolated from any of their patients but was obtained from the cage of a sick parrot responsible for the human cases. Radford [26] reports five cases from England with no deaths.

The recent outbreaks in Germany, notably those occurring in Berlin, Hamburg, Altona, Munich and other cities, have been reported in the medical press. Grunwald and Meyer [27] describe seven cases in Berlin (one death); Embden and Adamy,[28] fourteen cases in Hamburg (two deaths), and Günther [29] eight cases in Altona (one death). Kerchensteiner [30] has recently reported seven cases from Munich with two deaths. No definite etiologic agent has thus far been found by careful bacteriologic studies.

A compilation of all cases reported in the literature as psittacosis shows a total of 193 with fifty-eight deaths, a mortality of approximately 30 per cent. This does not include sixty cases reported in Argentina and the present outbreak in this country, which undoubtedly comprises a considerable number.

SYMPTOMATOLOGY

The best opportunity to study the symptomatology of psittacosis was offered by the Paris epidemic of 1892.

The clinical picture as described then and in subsequent reports is essentially that of a typhoid infection

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or of an atypical pneumonia. The diagnosis of influenza with bronchopneumonia is commonly made and psittacosis is not even thought of until some one mentions the association with a sick parrot. The onset as a rule is insidious. Usually from one to two weeks after contact with the diseased bird, the first symptoms are noted. These vary in intensity and character and

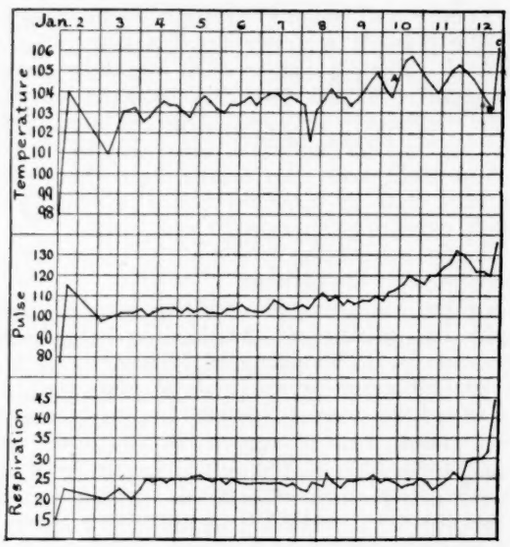

Chart 1.—Course of temperature, pulse and respirations in case 1: *A*, rectal; *B*, chill; *C*, died.

are not especially characteristic. They include general malaise, headache, muscle pains, anorexia, nausea, vomiting and fever. Chilly sensations or definite rigors are frequent. Cough is often present and frequently without sputum. Examinations early in the disease generally show a relatively high temperature (from 103 to 104) and a low pulse rate (90 to 100), with signs of bronchitis, pleurisy or bronchopneumonia. The abdomen may or may not be distended. An enlarged spleen and rose spots are more often absent than present. There may be constipation or diarrhea. In severe cases the symptoms of onset become more marked and delirium is prone to occur. An unusual sign is the occurrence of an ulcerative stomatitis in some patients who have allowed the parrots to feed from their mouths.

In the unfavorable cases the area of pneumonia tends to enlarge or to extend to the previously unaffected portion of the lungs. Pulmonary involvement usually more striking than abdominal signs is apparently the most serious feature of the disease, and the extent of this is an index to prognosis.

In favorable cases the fever falls after about eight or ten days to three weeks, and the patient recovers. Children seem to have a relatively benign course as a rule, while the aged are more susceptible. The mortality ranges from 30 to 40 per cent.

REPORT OF CASES

CASE 1.—Mrs. A. S. of Johnstown, N. Y., a housewife, aged 34, was taken ill, Jan. 2, 1930, with general malaise and body pains, a temperature of 104 F., a pulse rate of 112, and respirations of 24. The symptoms that followed were nausea, vomiting and slight looseness of the bowels, with some abdominal soreness and moderate distention. Sweating was profuse, but there were no chills. Considerable cough was present; but no sputum, except one small plug, was raised. This was too little for cultural examination, and a smear was not remarkable. The patient developed signs of consolidation of the left lower lobe with numerous fine râles over the upper lobe posteriorly. A loud leathery friction rub was heard in the left axilla. The abdomen showed slight distention and increased muscle resistance in the upper left quadrant, interpreted as due to a diaphragmatic pleurisy. There were no rose spots, and the spleen was not palpable. The examination was otherwise entirely negative. No delirium was present. The pulse rate and respiration rose on the twelfth day; the patient became very toxic and, following a severe chill, died (chart 1). Permission for autopsy could not be obtained.

Routine examination of the urine was negative. A white blood count was 8,000. Two blood cultures, taken January 11, showed no growth.

Agglutination tests, January 16, were positive for *B. psittacosis* in a 1:20 dilution, and *B. pestis-caviae* in a 1:40 dilution. The test was partially positive for *B. typhosus* in a 1:40 dilution. The significance of the agglutination tests was indeterminate.

From the history, physical signs and laboratory data one could not differentiate this case from ordinary influenza with bronchopneumonia. The absence of sputum, the relatively slow respiration, the disproportion between the temperature and the pulse rate, and the low white count were not in any sense diagnostic.

The interesting fact was learned, however, that the patient received on Christmas day the present of a South American parrot purchased from a dealer in Schenectady. The next day it was noticed that the parrot was ill. It sat with its feathers ruffled out and showed a definite diarrhea. The patient nursed the parrot and was in close contact with it and the cage until she became ill, January 2. On this day and the succeeding days the patient's mother-in-law, her two children, and her husband shared in caring for the sick bird. January 6, because of reports which he had read in the newspaper, the husband killed the parrot and burned it, together with its cage.

CASE 2.—Mrs. F. S., aged 72, the mother-in-law of patient 1, became ill, January 8, six days after the first patient, with general malaise, a fever of 103 F., a pulse rate of 100, and

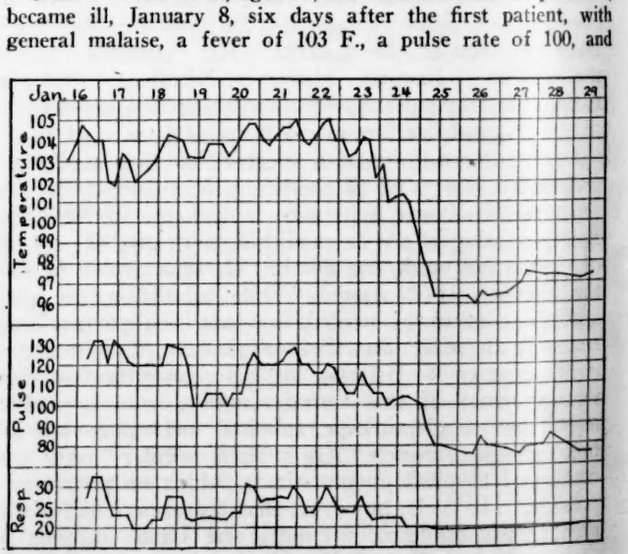

Chart 2.—Course of temperature, pulse and respirations in case 3.

nausea and vomiting. There was no diarrhea and no chill. On the following day she was drowsy and semicomatose, with, mild delirium, a temperature of 104.6, a pulse rate of 100, and signs of bronchopneumonia at the left base. There was no cough or sputum. The patient appeared critically ill. The neck was slightly stiff. The Kernig and Babinski signs were negative. There was no abdominal distention or rose spots, and the spleen was not enlarged. General physical examination was otherwise entirely negative. The temperature remained high and the pulse relatively slow. No chart was made in this

case. In spite of the apparently bad prognosis, the patient gradually recovered, the temperature reaching normal in two weeks.

Routine examination of the urine was negative. The white blood count was 6,150, with a differential count of polymorphonuclears 47 per cent, lymphocytes 52 per cent, and eosinophils 1 per cent. The first blood culture, taken January 11, showed no growth. A second blood culture showed no growth other than obvious contamination. A stool culture was negative for typhoid, paratyphoid, dysentery and psittacosis.

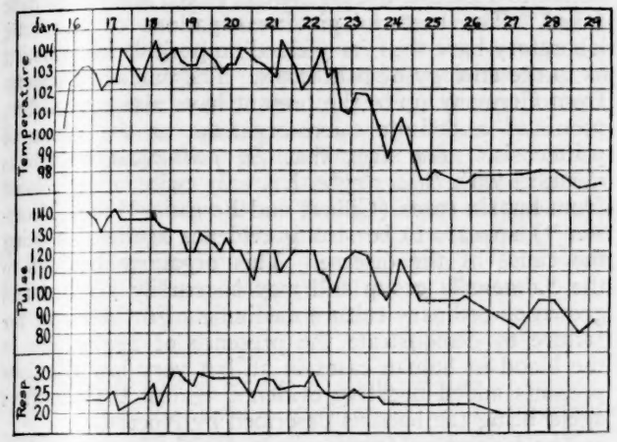

Chart 3.—Course of temperature, pulse and respirations in case 4.

The following agglutination tests, made January 15, were negative: *B. psittacosis, B. pestis-caviae, Brucella abortus, B. tularense, B. typhosus, B. paratyphosus* A and *B. paratyphosus* B.

CASE 3.—M. S., a girl, aged 10, a daughter of patient 1, was a sturdy healthy child who, except for attacks of acidosis since early childhood, had never been seriously ill.

She was taken ill, January 15, thirteen days after her mother, with severe abdominal pain of such intensity that she cried because of it. This was followed by headache, fever, nausea, vomiting and loose green foul smelling stools. The child, mentally clear, looked ill for the first three days. The ears, throat, heart and lungs were normal. There was no cough or sputum. The abdomen was considerably distended, but there was no muscle spasm. There were a few pink spots which faded on pressure—questionable rose spots. At this time the patient looked as if she had a moderately severe case of typhoid (chart 2). On the tenth day the temperature fell to normal, and convalescence was uneventful.

Repeated examinations of the urine were negative, excluding pyelitis and acidosis. White blood counts were 8,400 and 7,800. A blood culture, January 20, showed no growth. Agglutination tests were negative for *B. typhosus, B. paratyphosus* A and B, *B. pestis-caviae,* and *B. psittacosis.* The stool was not examined.

CASE 4.—K. S., a girl, aged 5, another daughter of patient 1, was taken ill, January 15, the same day as her sister. The symptoms of onset were similar but milder, consisting of abdominal pain, fever and loose stools. There was no headache, nausea or vomiting. Her past history recorded bronchopneumonia in December, 1927, as the only serious illness. General physical examination was negative except for slight abdominal distention. There were no rose spots and the spleen could not be felt. The ear drums were normal. The course of the temperature and pulse rate are shown in chart 3. Convalescence was normal.

Routine examination of the urine was negative. White blood counts were 7,800 and 9,150. A specimen of blood was not taken. A culture of the stool, January 20, was negative for *B. typhosus, B. paratyphosus* A and B, *B. dysenteriae,* and *B. psittacosis.*

CASE 5.—L. S., aged 38, the husband of patient 1, became ill, January 17, two days after his daughters, with symptoms of headache, fever, chilly sensations, sweats, abdominal pain, slight nausea and diarrhea. After the first two days, fever and sweating were the only marked symptoms. The patient never looked acutely ill; the temperature was high and the pulse relatively slow (chart 4). General physical examination was entirely negative, except for slight abdominal distention. There were no rose spots and the spleen was not palpable. The temperature reached normal on the eighteenth day, and convalescence was uninterrupted.

Routine examination of the urine was negative. White blood counts were 5,950, 7,560 and 11,000. A blood culture, January 20, showed no growth. Agglutination tests, January 23, were negative for *B. typhosus, B. paratyphosus* A and B, *B. pestis-caviae,* and *Brucella abortus.* A stool culture on two occasions, January 22 and 23, was negative for *B. typhosus, B. paratyphosus* A and B, *B. dysenteriae,* and *B. psittacosis.*

COMMENT

There was nothing remarkable in the clinical aspect of this series of five cases. The symptoms and physical signs found were those usually encountered in grip, pneumonia or the enteric group of fevers. The white blood counts were uniformly low. Cough when present was unproductive. As a rule the temperature was high and the pulse relatively slow. The bacteriologic study of the blood and stools was entirely negative. The agglutination reactions in case 1 of 1:20 for *B. psittacosis,* 1:40 for *B. pestis-caviae,* and 1:40 for *B. typhosus* are not significant, even though Nicolle reported agglutinations of 1:50 and 1:60 with the serum of patients with psittacosis mixed with a suspension of *B. psittacosis* of Nocard. The one distinctive point in connection with this series of cases is that every one of the patients was proved to have had close and intimate contact with a sick parrot.

EPIDEMIOLOGY

In tracing the source from which the sick parrot came we are entirely indebted to Dr. Edward S. Godfrey of the New York State Department of Health. He established the fact that the dealer in Schenectady from whom the parrot was bought had obtained it from a large importer in New York City, and that it was one of a shipment of 300 which arrived in this country from Colombia, Dec. 3, 1929; 160 of these parrots were sold to one dealer and 140 to another. In dis-

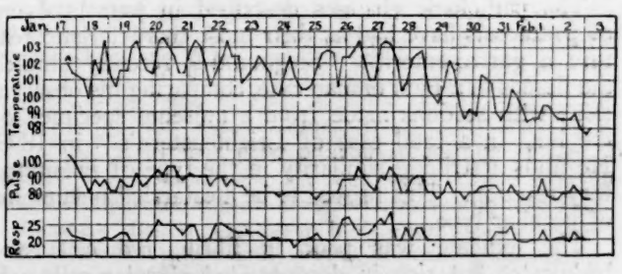

Chart 4.—Course of temperature, pulse and respirations in case 5: *A,* admitted at 8:30 p. m.

cussing the subject of psittacosis before the Albany County Medical Society, February 18, Dr. Godfrey stated that eighteen cases had been investigated in New York State which are believed to be psittacosis. In all there was a proved association with sick parrots or their cages, and in all but two instances the parrots have been definitely traced to the shipment from Colombia. He further stated that the United States Public Health Service has received reports from the country at large of seventy cases, with fifteen deaths. These came from various cities, including Baltimore, Annapolis, Toledo, Kansas City and Los Angeles.

In many of these also the parrots have been discovered to have come from the shipment that arrived

in New York, December 3. In two instances the condition has been associated with a canary, and in one case with a love bird.

There is one point in the epidemiology of the disease that requires further explanation, and that is the apparent relative infrequency with which bird dealers, caretakers in zoological gardens and sailors who are associated with sick parrots on shipboard come down with the disease. There is no satisfactory explanation, unless one assumes that these individuals develop an immunity. By contrast, however, laboratory workers in this country who have worked with the sick parrots seem to have been particularly susceptible to the disease.

It is now quite apparent that the outbreaks of psittacosis in Germany, the United States and England are all in some way connected with a probable widespread infectious disease among parrots in South America. In this connection it is important to note that a large series of human cases occurred in Argentina during the summer of 1929.

In the official bulletins of the Section on Hygiene of the League of Nations for Nov. 28 and Dec. 5, 1929, there is a report of a severe epidemic of psittacosis in Argentina. The report states that during the months of July and August, 1929 (Argentine winter), there occurred in the city of Cordoba numerous cases of an epidemic and contagious disease which were described clinically as cases of bronchopneumonia or pleurisy. They appeared in groups. The patients presented a typhoid state, with marked asthenia and severe nervous symptoms, including delirium. The temperature was high, and cough was as a rule unproductive. The disease developed slowly, convalescence was difficult, and the mortality was considerable. The diagnosis of psittacosis was not made until some time after the first cases appeared. The association with sick parrots was later definitely established. A more recent number of the same publication [31] (Jan. 23, 1930) states that Dr. Enrique Barros of Cordoba has reported forty cases in the medical press of Argentina and that up to the present sixty cases have occurred.

PATHOLOGIC ANATOMY

The pathologic changes described in parrots dying of psittacosis have had as their most characteristic feature a gastro-enteritis. Siegmund [32] recently studied the tissues in a fatal human case, comparing his observations with sections made from a museum specimen of the lung in a fatal case of Leichtenstern's [16] in 1898. He finds a striking similarity in the type of inflammatory reaction. This proved to be a catarrhal pneumonia of peculiar type.

The exudate was poor in fibrin, red cells and leukocytes but rich in desquamated alveolar cells. It differed thus from the usual lobar pneumonia, in which the exudate is composed of red cells, fibrin and leukocytes. From the usual grip pneumonia the picture differed by the absence of changes in the bronchi and finer bronchioles. Whether it is justifiable to consider these changes pathognomonic of human psittacosis is open to question.

Thomson [25] found in a case recently seen at autopsy in England that the finer bronchioles were all plugged with desquamated epithelium. Clinically this caused a peculiar absence of breath sounds on auscultation of the chest.

Oberndorfer,[33] on the other hand, from the study of a recent case states that the gross and microscopic picture of the lungs in human psittacosis is very similar to that of severe grip pneumonia. He believes that a mixed infection of secondarily invading organisms is present.

RECENT STUDIES ON ETIOLOGY

Efforts by the New York State Department of Health Laboratory to transmit the disease from a sick parrot to a normal one by contact in the same cage have failed. The bacteriologic investigations of the state laboratory have thus far yielded no positive information as to the etiology of psittacosis. The published reports from Germany up to the present have also revealed no proof of a definite micro-organism as the cause of psittacosis. The fact that *B. psittacosis,* which is identical with *B. aertryke,* has only twice been isolated from human cases (Gilbert and Fournier [13] and Thomson [24]) appears to be strong evidence against its being the cause of the disease. This organism belongs to the *Salmonella* group and may be readily isolated and grown on ordinary culture mediums. Furthermore, the failure to demonstrate the presence of agglutinins in the blood in human cases in all but very low dilutions presents added negative evidence against the causative agent being the bacillus described by Nocard.

The lack of uniformity in bacteriologic observations and the frequent negative results of cultural studies have suggested the possibility that the etiologic factor is a filtrable virus. Reports from England in February, 1930, by Bedson, Western and Simpson [34] present suggestive preliminary evidence that this view is correct. These workers investigated three sick parrots which had been considered responsible for human cases. In all, the injection of the filtrate of an organ suspension produced a fatal disease in budgerigars (green parrakeets), and one of these strains has been carried to the third generation. Controls inoculated with unfiltered suspensions of either parrot or budgerigar organs which had been heated to 100 C. for twenty minutes have remained well. Bacteriologic study of these three parrots and three others associated with human cases were negative for *B. aertryke* (Nocard's bacillus) or any member of the *Salmonella* group. In addition to these experiments, six suspected parrots which were ill but had not been held responsible for the occurrence of human psittacosis were studied bacteriologically. In five of these birds, no member of the *Salmonella* group was found, but from the remaining one *B. aertryke* (Nocard's bacillus) was isolated with the greatest ease from the heart's blood, liver, spleen, pericardial fluid and intestinal contents.

The postmortem picture was entirely different from what had been observed in the other parrots, including the three from which a filtrable virus had been obtained. This is believed by these authors to offer additional evidence that *B. aertryke* is not the cause of psittacosis. Inoculation with material from eight different human cases of psittacosis has produced disease in budgerigars in every instance. Although these English investigators have no proof as yet that the virus demonstrated in sick parrots and in human cases of psittacosis is the same, they entertain little doubt that such is the case. Final proof will be the subject of future study. The one possible flaw in this work is the fact that the parrot is susceptible to the virus of fowl plague, and that

31. Weekly Epidemiological Record, Health Section, League of Nations 5: 636, 1930.

32. Siegmund, H.: Zur pathologischen Anatomie der Psittakosis (auf Grund von Untersuchungen während einer Hausepidemie in Sommer 1929), München. med. Wchnschr. 77: 223 (Feb. 7) 1930.

33. Oberndorfer, S.: Pathologisch-anatomische Befunde bei Psittakosis, München. med. Wchnschr. 77: 311 (Feb. 21) 1930.

34. Bedson, S. P.; Western, G. T., and Simpson, S. L.: Further Observations on the Etiology of Psittacosis, Lancet 1: 345 (Feb. 15) 1930.

Bedson, Western and Simpson may be dealing with this virus.

Günther,[29] also in February of this year, reported that blood taken from a human case at the height of the fever and inoculated into a healthy young parrot caused its death in three days. Autopsy showed a gastro-enteritis with changes in the liver and spleen.

Krumwiede, McGrath and Oldenbusch[35] have reported their failure to find *B. psittacosis* in any of the human cases studied. The emulsified filtered organs of a sick parrot fed and injected into another normal parrot reproduced the same disease picture. The disease was passed on to a second parrot by the same procedure. A similar result was obtained by feeding the sputum and blood from a human case to a parrot. The disease was carried through three generations by successive inoculations and feedings of the organs. The authors believe that their results indicate the presence of a filtrable virus in both the parrot and the man, and that this virus is the primary etiologic agent of the disease. This work, done quite independently of that in England, adds strong confirmatory evidence.

CONCLUSIONS

1. In spite of the relatively small number of cases of psittacosis in proportion to other types of infectious disease, further study of its etiology, its epidemiology and its clinical features is important.

2. That freshly imported parrots die in great numbers from infectious disease is well established, and that they may form a potential source of danger to man cannot be denied.

3. The clinical features of human psittacosis are not new. Cases described in previous epidemics and in epidemics at the present time in various countries show a strikingly similar symptomatology. The picture is that of atypical pneumonia, often accompanied by symptoms of typhoid.

4. House epidemics of an unusual form of pneumonia have been encountered in which there was no contact with sick parrots. One is not warranted, however, in hastily drawing the conclusion from this that all previous epidemics of psittacosis were simply examples of an unusual type of infectious disease, and that the fact that a sick parrot was in the household was merely a coincidence. The testimony of the Paris epidemic of 1892 and of the present outbreaks in Argentina, Germany, England and the United States strongly argues against such an assumption.

5. Although a few rare instances have been reported in which the disease apparently passed from one individual to another, this type of transmission is decidedly unusual and is denied by numerous authors. Hence the danger of an epidemic of serious proportions does not exist and there are no grounds for undue public excitement or apprehension.

6. The evidence concerning cases of psittacosis and their association with recently imported sick parrots has been deemed sufficient by the governments of the United States and Germany to warrant forbidding temporarily all importations of parrots.

7. The etiologic agent in human psittacosis has not yet been definitely established. There is no convincing proof that the bacillus described by Nocard is the cause. Recent studies in England strongly suggest the possibility that a filtrable virus is responsible for the infection both in parrots and in man, and this work has been confirmed recently in this country.

35. Krumwiede, C.: McGrath, M., and Oldenbusch, C.: The Etiology of the Disease Psittacosis, Science **71**: 262, 1930.

PSITTACOSIS

A STUDY OF THREE CASES

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WARREN, OHIO

Dec. 21, 1929, a parrot was delivered at the home of Mr. M., where lived Mr. M., aged 70, his wife, aged 69, and his daughter, aged 45. The parrot had arrived a few hours before from Chicago and was received in Warren by a pet shop retailer, who, after a few hours, delivered it at the home of Mr. M. About twenty-four hours later they noticed that the bird was ill. Mrs. M. and her daughter wore canvas gloves to keep from being bitten and nursed the parrot at times in their laps. The bird developed diarrhea and became quite weak. Its wings drooped, and its feathers were ruffled. About thirteen days after the onset of illness, the bird died and was buried by Mr. M.

REPORT OF CASES

CASE 1.—Mrs. M., about Jan. 1, 1930, began to notice loss of appetite, malaise, slight headache and general body aches, worse in the lumbar region. By January 6, she decided to call a physician. I found her complaining of extreme lumbar backache, headache, weakness and chilliness. She was not confined to bed at that time, but her symptoms became more marked and finally she remained in bed.

The temperature was 101.2 F., and the pulse 88, full and of good volume. The tongue was coated; there was no glandular enlargement and nothing abnormal in the throat.

January 7, the patient had some nosebleed; January 8, she developed bronchitis, nausea and vomiting, distention of the abdomen and constipation, and sour eructations with a raw and burning sensation in the throat. January 10, there were slight blood streaks in the sputum for this day only; she complained of extreme weakness; the white blood count was 13,400; a blood culture was negative, and a Widal test for typhoid was negative.

January 12, a few scattered maculopapular spots were noticed on the patient's abdomen; there was no enlargement of the liver or spleen, and tests of the urine did not show anything of note.

The patient was seen, January 13, in consultation with Dr. W. W. McKay. The Widal tests for typhoid, paratyphoid A and B and undulant fever were negative. A differential blood count showed 11 per cent lymphocytes, 10 per cent large mononuclears and 79 per cent neutrophils.

By January 16 the red spots began to disappear, the cough was looser and there was less distention, but the bowels were still constipated. About January 20 the patient was fever free; she sat up in a chair at intervals and by January 23 walked a few steps. For the next four or five days she had a slight recurrence of fever but no other symptoms.

CASE 2.—Miss M. first began to feel bad about January 1, with loss of appetite and general malaise; gradually each day she noticed headache, chilliness and backache. January 7, she had diarrhea for one day only. She had a severe chill, January 8, with headache and extreme weakness.

Her temperature, January 9, was 102.2, and the pulse 112. The tongue was coated and the patient vomited at times; she was quite chilly and had severe headache.

January 10, a white blood count was 8,000; a blood culture was negative, and a Widal test was negative. The bowels were constipated. January 13, the patient had a few scattered rose spots over the abdomen. Dulness was noted on percussion over the lower base of the right lung and bronchial breathing over this area, but no cough. Widal tests were negative for paratyphoid A and B, typhoid and undulant fever. A white cell count was 7,100, with a differential count of 14 per cent small lymphocytes, 17 per cent large lymphocytes, 68 per cent neutrophils and 1 per cent basophils.

January 14, the patient developed a dry cough and looked quite ill; respirations averaged 20 a minute, and the pulse varied from 100 to 120. Rose spots persisted.

January 22, the base of the right lung remained congested and some râles appeared at the base of the left lung, but there was always very little expectoration. The pneumonia was atypical; there was no pain in the chest at any time.

January 25, the temperature was normal. The heart action was weak at times and had to be supported by digitalis and whisky. A trace of albumin was in the urine. By February 3, the patient was up in a chair for the first time.

CASE 3.—Mr. M. had not been ill in the past forty-five years. January 8, he went to bed complaining of headache, backache, chilliness, malaise and weakness. January 10, his temperature was 101.2, the pulse 64; the white cell count was 9,700, and a blood culture and Widal test were negative.

January 13, the patient developed a dry cough; scattered crepitant râles were heard over both bases of the lungs and there was increased dulness over the right lower base. A few rose spots were present over the abdomen. The white blood count was 9,100, with 15 per cent lymphocytes, 10 per cent large mononuclears and 75 per cent neutrophils. The Widal tests for typhoid, for paratyphoid A and B and for undulant fever were negative.

January 17, fresh rose spots were seen over the chest and abdomen; the patient was quite restless and slightly delirious at times.

January 18, there was some expectoration but never any blood in the sputum; bronchial breathing was heard over the base of the right lung but there was never any pleurisy. Marked hoarseness developed.

January 22, the lungs began to clear. By January 24, the rose spots began to disappear.

January 30, the patient was allowed out in a chair and recovery was uneventful.

COMMENT

These cases simulated typhoid or paratyphoid fever and at the onset were similar to ordinary grip, or influenza.

Mr. M. was the only one of the three who, together with other typical symptoms, showed the slow pulse characteristic of typhoid. The symptoms of the two women were a little more atypical with regard to slow pulse and a few other typhoid-like signs. I was not able to isolate any organism; I made a diagnosis in these cases of psittacosis.

The treatment was symptomatic, similar to that in typhoid (sponge baths, alcohol rubs, and the like). Sedatives consisted mostly of codeine for cough or restlessness. For stimulation I administered whisky when needed. The daughter was the only one of the three to whom I thought it necessary to administer digitalis because of her rapid heart action. I used a high caloric diet in all cases, when it was tolerated. The usual prophylactic measures adhered to in typhoid and allied diseases were used in caring for these patients.

SUMMARY

The outstanding points or peculiar symptoms noticed in the study of these cases were:

1. The insidious onset.
2. The lack of coryza or catarrhal sympoms.
3. Extreme weakness.
4. Constipation.
5. Persistence of headache and backache.
6. White blood cell counts only slightly above normal.
7. No enlargement of the spleen or liver.
8. Rose spots in all three cases.
9. Atypical pneumonia in two cases.

It has been brought to my attention that blood serum from convalescents or patients recovering from the disease has a curative or beneficial action in those ill. My three patients furnished blood, March 20, to the United States Hygienic Laboratory in Washington, D. C., to be used for treating active cases.

408 Union Savings and Trust Building.

POTASSIUM THIOCYANATE IN THE TREATMENT OF PATIENTS WITH HYPERTENSION *

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CLEVELAND

The increasing use of the sphygmomanometer in physical examinations has shown that elevation of the blood pressure is a common finding, especially in persons past middle age. Consequently, large numbers of patients with hypertension are seen by every medical practitioner; and since it has been estimated [1] that approximately 140,000 persons in the United States die each year from the consequences of high blood pressure, the problem of how to treat these patients assumes a good deal of importance. In the past, innumerable forms of therapy have been tried. These may be grouped under the heading of (*a*) general hygiene (including rest and relaxation); (*b*) dietetic measures; (*c*) physical agents, and (*d*) drugs. Thus far none of these measures have met with any real success. Recently, however, potassium thiocyanate has been hailed as the drug for reducing the blood pressure level.

The thiocyanate ion [CNS^-] was first used therapeutically in 1903 by Pauli,[2] who reported a sedative action in a great variety of neurotic patients and also a reduction of elevated blood pressure with relief of vertigo and other subjective symptoms. Then, in 1926, Westphal [3] reported favorable results with this drug and explained its action as a relaxing effect on the increased arteriolar tonus, which he regarded as chiefly responsible for essential hypertension. In this country, Nichols [4] in 1925 reported that he had used sodium thiocyanate in doses up to 15 grains (1 Gm.) daily with success in reducing arterial hypertension but had not noticed any marked sedative effects. In 1928, Gager [5] popularized the drug by reporting a series of cases in which thirty-five patients with essential hypertension were treated with potassium thiocyanate, with only three failures. Symptomatic relief as well as lowered blood pressure was reported. The dosage used by Gager was 1½ grains (0.1 Gm.) of the salt three times daily for the first week, twice daily for the second week, once daily for the third week, and thereafter this dose daily or every other day. Using the same dosage Palmer, Silver and White [6] report a series of fifty-nine cases of essential hypertension, in which 42 per cent of the patients showed a reduction in the systolic pressure of 30 mm. or more. Smith and Rudolf [7] report successful results with the administration of from 5 to 15 grains (0.3 to 1 Gm.) of sodium thiocyanate a day, and Logefeil [8] reports success with an 8 per cent solution of potassium thiocyanate in teaspoonful doses three times a day.

* From the cardiovascular clinic of Mount Sinai Hospital.

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2. Pauli, W.: Ueber Ionenwirkungen und ihre therapeutische Verwendung, München. med. Wchnschr. **1**: 153, 1903.
3. Westphal, K.: Ueber die Rhodantherapie des genuinen arteriellen Hochdruckes, München. med. Wchnschr. **73**: 1187 (July 16) 1926.
4. Nichols, J. B.: The Pharmacologic and Therapeutic Properties of the Sulphocyanates, Am. J. M. Sc. **170**: 735 (Nov.) 1925.
5. Gager, L. T.: Incidence and Management of Hypertension with a Note on Sulphocyanate Therapy, J. A. M. A. **90**: 82 (Jan. 14) 1928.
6. Palmer, R. S.; Silver, L. S., and White, P. D.: Clinical Use of Potassium Sulphocyanate in Hypertension: Fifty-Nine Cases, New England M. J. **201**: 709 (Oct. 10) 1929.
7. Smith, A. G., and Rudolf, R. D.: Use of Sulphocyanate of Soda in High Blood Pressure, Canad. M. A. J. **19**: 288 (Sept.) 1928.
8. Logefeil, R. C.: Use of Potassium Sulphocyanate (Rhodan) in the Treatment of Essential Hypertension, Minnesota Med. **12**: 151 (March) 1929.

Palmer and Sprague[9] report four cases in which potassium thiocyanate (used in the dosage recommended by Gager) caused untoward symptoms (uncomfortable weakness in two cases and anginal symptoms in the others) apparently due to the rapid lowering of the blood pressure. Weis and Ruedemann[10] report a case of exfoliative dermatitis due to potassium thiocyanate. Their patient developed the dermatitis ten days after beginning the drug (1½ grains three times a day for the first week and twice a day for the second week). Also Ayman[11] reports a case of exfoliative dermatitis after 10 grains (0.65 Gm.) of the drug had been taken three times a day for eight days.

In order scientifically to appraise the results obtained in the treatment of patients with hypertension, the following factors must be borne in mind:

1. The blood pressure in these patients is subject to spontaneous variations. In a monograph on this subject[12] the statement is made that "it is hardly possible to overemphasize the importance of constantly bearing the lability of hypertension in mind when judging the efficacy of treatment or the progress of the disease."

2. These patients are usually very much open to suggestion, and psychotherapy may therefore play an important rôle in the treatment.

3. In order to arrive at any real conclusion as to the therapeutic effect, it is necessary to follow these patients for a sufficient length of time.

4. It is necessary to get a significant reduction in the blood pressure.

METHOD USED

With these factors in view I proposed to follow my hypertensive patients for at least three months on a standard routine method of treatment. At the end of this period those patients deemed suitable for further observation were given potassium thiocyanate for a period of three months more. This meant a consecutive period of observation of at least six months for those patients who were given potassium thiocyanate. This program entailed considerable difficulty because patients with hypertension are notoriously difficult to handle and to keep contented, and tend to drift from one place to another in search of relief from their symptoms. As a significant reduction in pressure I have arbitrarily taken, for this study, a drop of at least 30 mm. of mercury in either the systolic or the diastolic pressure or both.

During 1928 and the first part of 1929 I was able to follow fifty-eight hypertensive patients in the cardiovascular clinic for long enough consecutive periods to make worth-while observations as to their pressures. Incidentally it may be mentioned that many of these patients have been under observation in the outpatient department intermittently for many years. The patients studied varied in age between 22 and 74. The males numbered eleven and the females forty-seven. All of them were ambulatory, without signs of decompensation. All patients showing evidence of a true nephritis were excluded from the series.

These patients were all given careful physical examinations. This was followed by a urine examination, an orthodiagram and an electrocardiogram. Chemical tests of the blood and special kidney function tests were also done in those cases in which they were indicated. The patients were then put on a routine sedative treatment, consisting of either sodium bromide or phenobarbital. The bromide was given in 15 grain doses three times a day and was often combined with cascara for patients who complained of constipation. The phenobarbital was usually given three times a day in doses of from ¼ to ½ grain (16 to 32 mg.). In addition, each patient was instructed to stay on a bland, easily digestible diet (low in calories for those who were overweight, and high in calories for those who were underweight). The question of general hygiene (including physical and mental rest) was discussed with the patient and last, but not least, he was given a measure of reassurance.

RESULTS OBTAINED WITH THE SEDATIVE TYPE OF TREATMENT

Of fifty-eight patients treated for three months or more during the years 1928 and 1929 by this method, a drop of at least 30 mm. in the systolic or diastolic pressure or both was obtained in twenty-two, giving 37 per cent who showed a definite improvement. The drop in the systolic pressure of the patients showing improvement ranged from 30 to 66 mm. (with an average lowering of 41 mm.). At the same time the diastolic pressures of these patients were lowered from 0 to 30 mm. (with an average of 13 mm.).

There did not appear to be any relation between the ages of the patients and the amount of improvement shown. In practically all of these cases the objective improvement was accompanied by definite subjective improvement also. Moreover, a great many of the patients who showed no lowering of the blood pressure volunteered the statement that they were feeling a good deal better while taking the medication and were sure that their blood pressure had fallen. Incidentally, it has been my practice in the clinic not to tell the patient the exact level of his blood pressure. It was found by this means that a patient would often state that he was feeling much better and that he knew that his pressure was much lower, when actually the blood pressure remained at the same (or even rose to a higher) level.

RESULTS OBTAINED WITH POTASSIUM THIOCYANATE

Patients in whom the sedative drugs had been tried out were then placed on potassium thiocyanate in doses of 1½ grains three times a day. In some of the earlier cases this dosage was cut down to twice a day after the first few weeks, but in most of the cases the dosage of 1½ grains three times a day was continued for the entire three month period. I was able to follow thirteen of these patients for a three month period. In one, the systolic pressure dropped from 164 to 138 and the diastolic pressure from 98 to 82. In all the other patients there was no significant lowering of the blood pressure. Incidentally, it might be mentioned that there were no untoward or unpleasant by-effects observed in any of the cases. Indeed, in a number of the patients the drug had a slight laxative effect. No sedative effect was observed, however, and most of the patients said that they had felt much better while taking the previous medication (bromides or phenobarbital).

As no results were being obtained by this method, it was not deemed wise to try it on any more patients and the use of potassium thiocyanate in doses of 1½ grains three times a day was discontinued.

It was then suggested that the administration of potassium thiocyanate in an 8 per cent solution be tried,

9. Palmer, R. S., and Sprague, H. B.: Four Cases Illustrating the Untoward Symptoms Which May Be Produced by the Use of Potassium Sulphocyanate in the Treatment of Hypertension, M. Clin. North America **13**: 215 (July) 1929.

10. Weis, C. R., and Ruedemann, Rudolph: Exfoliative Dermatitis from Potassium Sulphocyanate Therapy, J. A. M. A. **93**: 988 (Sept. 28) 1929.

11. Ayman, David: Exfoliative Dermatitis from Potassium Thiocyanate, J. A. M. A. **93**: 1671 (Nov. 23) 1929.

12. Norris, G. W.; Bazett, H. C., and McMillan, T. M.: Blood Pressure: Its Clinical Applications, Philadelphia, Lea & Febiger, 1927.

a teaspoonful of this solution being given three times a day (or approximately 5 grains [0.3 Gm.] of the drug three times daily).

This procedure was carried out successfully in twenty-one patients with systolic pressures ranging from 174 to 275 mm. and diastolic pressures between 94 and 150 mm. The results are summarized in the accompanying tabulation. Three of these patients were men and eighteen women. The ages ranged between 38 and 68 years, with six of the patients below 50 years, ten between 50 and 59 years, and five between 60 and 70 years. All but four of these twenty-one patients had failed to show a significant drop in pressure under the routine sedative treatment.

Of these twenty-one patients, twelve, or 57 per cent, showed a fall in the systolic pressure of 30 mm. or more. The fall in blood pressure usually began within two weeks and became more pronounced at the end of four weeks. Even the cases that did not show a sustained drop in pressure usually showed transitory falls, which might perhaps be the precursors of more permanent lowering of the pressure. It must also be emphasized that these patients were selected from those who did not show sufficient response to the sedative routine and were therefore the refractory cases.

As far as subjective improvement was concerned, it did not always parallel the objective improvement. Many of the patients asserted that they felt better while under the previous form of treatment (sedative), in spite of the fact that their pressures were now lower than before. Many of the patients also complained of

Comparative Blood Pressures

			With Sedatives				With Potassium Thiocyanate*			
			Before		After		Before		After	
	Patient	Age	Systolic	Diastolic	Systolic	Diastolic	Systolic	Diastolic	Systolic	Diastolic
1	B. A.	68	230	120	226	124	226	124	190	100
2	A. B.	48	280	150	240	150	250	150	230	130
3	S. C.	61	160	98	150	94	174	100	125	80
4	G. C.	65	226	100	205	95	205	95	164	90
5	O. E.	53	190	120	188	110	180	100	160	100
6	D. F.	52	208	100	190	100	220	110	180	100
7	S. F.	48	230	100	215	110	215	110	194	90
8	E. G.	52	198	110	182	110	182	110	160	95
9	R. H.	58	200	110	194	100	190	100	160	100
10	R. K.	58	200	100	200	108	200	108	170	80
11	T. K.	48	190	100	190	100	194	100	164	90
12	E. P.	50	210	130	190	120	190	120	210	120
13	A. R.	54	240	120	226	120	210	120	180	108
14	B. R.	52	275	130	275	130	275	140	240	110
15	G. R.	65	162	98	164	98	190	110	180	100
16	S. S.	54	260	130	230	130	230	130	210	130
17	A. L.	46	200	104	196	94	196	94	158	80
18	F. T.	38	180	120	176	114	186	112	160	100
19	A. W.	62	220	120	190	110	190	110	160	100
20	R. W.	55	220	130	190	110	200	110	150	80
21	N. W.	49	240	146	240	135	240	140	230	130

* Dosage 5 grains (0.3 Gm.) three times a day.

transient attacks of numbness and tingling paresthesias in the fingers when the administration of the drug was first started; but these usually disappeared spontaneously. Also a sudden drop in blood pressure was often accompanied by a feeling of weakness of varying degrees of intensity.

No harmful effects were observed in any of the patients with a dosage of approximately 15 grains a day for periods of three months.

SUMMARY

1. Fifty-eight hypertensive patients were treated with sodium bromide and phenobarbital for a period of three months or more. Of these patients twenty-two, or 37 per cent, showed a sustained drop in the pressure of 30 mm. or more. All of these patients and many who did not show this drop in pressure were subjectively improved.

2. Potassium thiocyanate in doses of 1½ grains three times a day failed to cause any drop in blood pressure.

3. Of twenty-two patients who were given potassium thiocyanate in a dosage of approximately 5 grains three times a day, twelve, or 57 per cent, showed a fall in pressure of 30 mm. or more.

4. The subjective improvement was greater when the sedatives were used, while the lowering of pressure was more marked with the use of potassium thiocyanate.

Keith Building.

FOURTH OF JULY INJURIES

A COMPARATIVE STUDY OF THE TREATMENT OF FOURTH OF JULY INJURIES AT THE BEEKMAN STREET HOSPITAL, NEW YORK, DURING THE SEASONS OF 1928 AND 1929 *

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Even with improved legislation and the educational campaign that has been carried on by municipal departments of health and other organizations, there are still enough injuries occurring during the Fourth of July season from toy firearms and fireworks to make them a definite and important surgical problem. In fact, there were more such injuries (in this series) in 1929 than in 1928, most of them caused by blank cartridge pistols. The glamorous and pseudoheroic escapades of the gangsters, which have been given so much publicity in late years, may have an effect on the play of children, especially during Independence Day celebrations. Possibly the future generation of gangsters is undergoing preliminary training.

It might be advisable for the proper authorities to attempt even stricter enforcement of laws in regard to the use of fireworks and toy firearms. It is not in my province, however, to discuss that phase here. This article is an attempt to show that these injuries, although apparently minor in nature, should receive careful surgical consideration and radical treatment. The danger of avoiding a casual consideration and treatment of these cases is greatly enhanced by the fact that they come in large numbers on busy days, as would be expected. I have found that the Fourth of July is a season, not just a day, and that new cases come into the clinic for treatment from about the second of July to the seventh or eighth. This makes several unusually busy days and, if the serious nature of these injuries is not well borne in mind, they may be treated in a rather summary manner with unfavorable results.

There were twenty-three cases in the 1928 series and thirty-one in 1929. Of the total of fifty-four patients, four were females and fifty were males. The ages varied from 6 to 43, with an average of 15.5 years.

Thirty-nine of the injuries, or 72.2 per cent, were gunshot wounds from blank cartridges, eight were gunpowder burns, and seven were burns by fireworks.

The hand, including the fingers, was injured in thirty-nine cases, or 68 per cent, while other locations were injured in the remaining eighteen, or 32 per cent, of the cases. The other locations included the face, scalp, eye,

* A summary of two papers prepared for and read before the surgical staff of the hospital in October, 1928, and November, 1929.

chin, forearm, arm, shoulder, chest, knee and leg. This demonstrates the predominance of injuries to the hands and fingers but also points out that many other regions may be affected.

MORBIDITY

The total morbidity for the fifty-four cases was 531 days. This refers to the number of days from the first treatment to the day of discharge from the clinic. The lowest number of days was one and the highest fifty-nine, with an average of 9.8 days.

TREATMENT

The total number of treatments for the fifty-four cases was 318, varying from one to twenty-three per case, with an average of 6.35 treatments.

Many different forms of treatment were used in 1928:

Antitetanic serum was given in eighteen cases.
The wound was cleansed in seven cases.
The wound was scrubbed in two cases.
The wound was debrided in two cases.
Incision and drainage were done in two cases.
Drains were inserted in eight cases.
Powder was removed in one case.
The wound was sutured (suture removed the following day) in one case.
Other wounds were treated with iodine in one case, phenol and alcohol in two cases, alcohol in one, boric acid ointment in two, wet dressings in eight, hot soaks in ten, flamed adhesive in one and dry dressings in one. Two patients were referred to dermatologists.

These measures refer only to the procedure on the first few days of treatment. It is obvious that many different treatments were used, the most consistent being the administration of antitetanic serum, the insertion of drains, the use of wet dressings, and hot soaks.

During these treatments (1928), the wounds of ten out of the eighteen patients in whom treatment was completed became infected (55 per cent), and ten out of the fourteen with gunshot wounds who were treated until discharged became infected (71.5 per cent). Powder was removed from at least three of these wounds, and blank cartridge plugs were removed or were extruded by the infection in three cases. In one case, plugs or portions of plugs were removed on the sixth, seventh, eighth and twenty-third days, the wound remaining infected the while, because of these foreign bodies. Two of these patients were admitted to the hospital, one with infection of the palmar space and the other with acute suppurative tenosynovitis of a finger (in this patient the condition had been present three days before admission to the clinic). The result of the latter was permanent loss of the tendon.

SUMMARY OF THE 1928 CASES

With particular emphasis on the fourteen gunshot wounds that were treated until discharge, there was an average morbidity of 14.38 days, while the average number of treatments was 7.78. The variety of the treatment has been noted and the fact that 71.5 per cent of the wounds became infected. The infection was noted to be prolonged and aggravated by the presence of foreign bodies (powder and blank cartridge plugs). Two patients were hospitalized and in one case the injury resulted in a permanent disability. Thus it is obvious that this type of case proves to be worthy of consideration and that the treatment given can be improved on.

IMPROVEMENTS IN TECHNIC

With that in mind, the following technic was proposed for use during 1929 for cases of gunshot wounds in which the injury or burn was of any appreciable depth:

1. Antitetanic serum, from 800 to 1,500 units, according to age, in all cases, the usual precautions being used (intradermal test).
2. The use of a general anesthetic, whenever possible, otherwise local, for the following procedure:
3. On the first visit of the patient, wide débridement with removal of all powder and other foreign bodies, thorough mechanical irrigation with hot physiologic solution of sodium chloride, application of 7 per cent tincture of iodine, loose packing with gauze packing and moist saline dressings.
4. The recommendation of hot saline soaks every two hours until the possibility of infection has subsided.
5. Frequent redressings with removal of the packing in a day or two.

This routine was carried out in 1929 in twenty cases according to the specified indications. The remaining cases were superficial abrasions and burns and were treated without débridement in the customary manner.

Results of Treatment of Gunshot Wounds in 1929

	1928	1929
Number of cases	14	20
Average morbidity	14.38 days	13.5 days
Average number of clinic treatments	7.78	7.2
Number of cases hospitalized	2	5
Percentage of cases hospitalized	14.3%	25%
Average hospital morbidity	4 days	2.8 days
Permanent disability or defect	1	0
Proportion of wounds that became infected	71.5%	0

Some form of foreign body was removed in all of the twenty debrided wounds. Definite blank cartridge plugs were removed in three, powder in fourteen, and débris in four cases. Six of the patients with gunshot wounds were admitted to the hospital. Four of these had no further operative treatment, one being observed because of a stiff neck and an antitetanic serum reaction. In three, hot soaks were prescribed and the wound was observed for possible infection, while in the remaining two the wound was debrided under general anesthesia.

None of the 1929 cases resulted in a permanent disability and none of the wounds became infected.

SUMMARY OF 1929 CASES

Referring only to the cases of gunshot wounds by blank cartridges that were treated in the clinic and followed until discharged as cured, the accompanying tabulation shows the following:

1. There were more cases in 1929 than in 1928.
2. The average morbidity was slightly less in 1929.
3. The average number of clinic treatments was slightly less in 1929.
4. The number of cases hospitalized in 1929 was greater.
5. The percentage of cases hospitalized also was greater, but this was made up by the fact that the average hospital morbidity was appreciably less in 1929.
6. The permanent disability or defect in 1929 was less.
7. The proportion of infections has been lowered from 71.5 per cent to nothing.

2 East Fifty-Fourth Street.

THE PREVALENCE OF SYPHILIS IN APPARENTLY HEALTHY NEGROES IN MISSISSIPPI

AS DETERMINED BY COMPLEMENT FIXATION REACTIONS IN UNSELECTED GROUPS *

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The prevalence of syphilis in apparently healthy negroes is a subject on which there is little precise information. Estimates as to the infection rate in this race vary widely. No large series of accurately studied cases has been reported.

REVIEW OF THE LITERATURE

Fox [1] states that the prevalence of syphilis in the American negro is undoubtedly greater than in the white race but that it is incorrect to state that half or more of negroes are syphilitic. From statistics compiled at the Central Dispensary in Washington, it was found that the disease occurred one and one-half times as often in negroes as in whites. In 15,000 white patients there were 621 cases, a rate of 4.1 per cent; of 32,000 negroes 1,900 were infected, a rate of 5.9 per cent. Matas [2] found a proportion of fifty-one cases of syphilis in negroes to twenty-eight cases in whites among 1,000 patients. Zimmerman [2] found that a much greater number of infections occurred before the twentieth year in negroes than in whites. He states that the severity of the disease is generally milder in negroes than in white persons and more amenable to treatment.

Hazen [3] declares that in this country from 10 to 20 per cent of all hospital patients show a positive Wassermann reaction. An analysis of the serologic work at King's County Hospital in 1920 and 1921 shows that 13.8 per cent of those admitted were apparently infected with syphilis. Hala [4] investigated the cause of death in 1,088 cases coming to autopsy and found it to be syphilis in 21.41 per cent. Belding and Hunter,[5] basing their conclusions on a study of 5,198 maternity ward patients of several nationalities in the Robinson Memorial of the Massachusetts Homeopathic Hospital, found a rate of 17.1 per cent in negroes. Falls and Moore,[6] in 160 patients of various nationalities, found 28.5 per cent in the negro group positive.

The average clinical estimate of seven leading authorities is 46 per cent of syphilis among all negroes. Three investigators in Wassermann surveys on healthy negroes found 26.54 per cent positive. Belding and Hunter [5] state that nativity seems to have a definite bearing on the extent of syphilis in the negro. In their series the southern negro gave the highest rates, 27.1; the northern negroes gave a rate of 12.0 and the foreign born the lowest, 8.3.

Paullin, Davison and Wood,[7] in a study of syphilis in patients at the Grady Memorial Hospital, found that a conservative estimate of syphilis among the outpatients would be from 17 to 22 per cent on a basis of 3,586 outpatients and 13.8 per cent on a basis of 4,786 inpatients. In their summary the authors state that infection with syphilis occurs in approximately 20 per cent of patients seeking admission at Grady Hospital.

At the United States Public Health Service Venereal Disease Clinic [8] in Hot Springs, Ark., a total of 5,408 blood Wassermann tests have been made on negroes from Mississippi, Arkansas and Louisiana who were seeking relief from previously diagnosed venereal diseases. The results of these examinations are shown by age groups in table 1.

PRESENT STUDY

Our purpose in this investigation was twofold: first, to determine the rate of positive blood Wassermann reactions in unselected groups of rural Mississippi negroes for the purpose of estimating the importance of the disease as a public health problem, and, second, to furnish data for subsequent comparison after efforts toward control of the disease have been inaugurated.

TABLE 1.—*Wassermann Reaction of Colored Patients Examined in the U. S. Public Health Service Clinic at Hot Springs*

Age Groups, by Years	Arkansas: Total Wassermann Tests	Arkansas: Positive, Number, Male	Arkansas: Positive, Number, Female	Arkansas: Positive, Per Cent	Louisiana: Total Wassermann Tests	Louisiana: Positive, Number, Male	Louisiana: Positive, Number, Female	Louisiana: Positive, Per Cent	Mississippi: Total Wassermann Tests	Mississippi: Positive, Number, Male	Mississippi: Positive, Number, Female	Mississippi: Positive, Per Cent
1- 4*.	1	1	0	100	1	1	0	100	2	0	1	50
5- 9..	15	3	0	20	10	1	1	20	8	3	1	50
10-14..	24	7	3	42	7	2	1	43	3	0	0	00
15-19..	333	76	62	41	58	9	9	31	39	12	4	41
20-29..	1,640	348	260	37	420	87	75	39	276	62	30	33
30-39..	875	168	144	36	222	48	32	36	218	39	20	22
40-49..	525	98	34	25	103	29	8	36	127	22	12	26
50.....	361	59	13	20	62	11	1	20	78	10	3	17
Total.	3,774	760	516	33	883	188	127	37	751	148	71	29
	Negative.. 2,498				Negative.. 568				Negative.. 532			
	Positive... 1,276				Positive... 315				Positive... 219			
	Total..... 3,774				Total..... 883				Total..... 751			

Total negative..... 3,598, 66⅔%
Total positive..... 1,810, 33⅓%
Total 5,408

* Group too small to base conclusions on.

The investigations reported here were carried out in Humphreys, Hinds and Bolivar counties, Mississippi. Humphreys and Bolivar counties are situated in the flat alluvial area of central western Mississippi, known as the Delta. Hinds County lies in south central Mississippi in the pine hill section of the state. In both geographic divisions the chief industry of the rural inhabitants is the production of cotton. There are not sufficient differences in the economics of farming in

* The studies and observations on which this report is based were carried out with the support and under the auspices of the Mississippi State Board of Health, the United States Public Health Service and the International Health Division of the Rockefeller Foundation.

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4. Hala, W. W.: Incidence of Syphilis: An Analysis of 1,088 Autopsies, Am. J. Syph. **6**: 616-622 (Oct.) 1922.
5. Belding, D. L., and Hunter, I. L.: The Wassermann Reaction in Different Social Classes, Am. J. Syph. **8**: 117-129 (Jan.) 1924.
6. Falls, F. H., and Moore, J. J.: The Value of the Wassermann Test in Pregnancy, J. A. M. A. **67**: 574 (Aug. 19) 1916.
7. Paullin, J. E.; Davison, M. H., and Wood, R. H.: The Incidence of Syphilitic Infection Among the Negroes in the South: Its Influence in the Causation of Disability, Boston M. & S. J. **197**: 345-351 (Sept. 1) 1927.
8. Statistics compiled from unpublished records at the United States Public Health Service Venereal Disease Clinic in Hot Springs, Ark.

either section as compared with the other to justify a separate description of the methods in each. Of the total examinations reported here 982 were done at Mound Landing in Bolivar County, an entirely negro settlement, where farms and homes are owned by

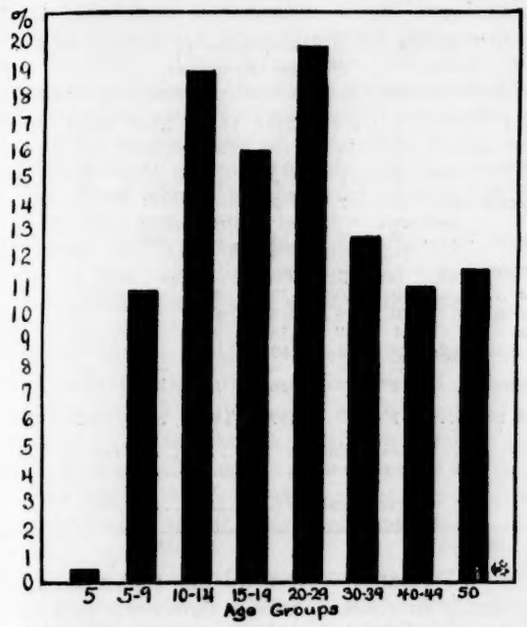

Chart 1.—Percentage of examinations in each age group.

negroes. The remainder were done on plantations largely owned by white persons but tenanted by negroes.

Bolivar and Humphreys counties are both largely rural counties. According to the census of 1925,[9] Humphreys County had an all farm population of 13,623, of which 11,674 were negroes, a rate of six negroes to one white person. Bolivar in that year had an all farm population of 44,693, of which 38,977 were negroes, a rate of 6.5 negroes to one white. Hinds, in the same year, had an all farm population of 25,537, of which 21,566 were negroes, a rate of 5.4 negroes to one white. It may be seen, then, that in all three counties the racial ratio of rural negroes to rural whites is above 5 : 1.

Table 2 gives the number of farms in each county, the number owned or partly owned by negroes, and the percentage of farms owned or partly owned by negroes as of 1925.

It may be seen from this table that the negro, although numerically greatly predominant, is not an important factor in the wealth of these counties.

It does not seem out of place here to go into some detail as to the outstanding social characteristics of the negroes which make up this group, so far as these customs are relevant to the problem. The rural negroes of Mississippi are unmoral and prodigal. The rite of civil marriage is a much neglected function, and while more than 75 per cent of the so-called married group have gone through a church marriage, only about 15 per cent have applied for a civil license. In none of the classes of marriage are the ties particularly binding. The age of first sex experience is early, probably on an average well below 15 years for both sexes. Promiscuity before marriage, and again sooner or later after marriage, is the rule. There are, of course, exceptions to this state of affairs, but the man and wife who have lived together over a period of years without outside sex relations, on the part of both, are a rare couple.

Prodigality is a class trait almost without exception. In this group of rural Mississippi negroes few save a penny from one year to the next. When settlement is made in the fall of the year with the planter, few have any money coming to them. What they have been advanced during the season on their crop usually covers whatever profit is due them. This point is brought forward to show that whatever degree of syphilis is present is not, to any great extent, spread by professional prostitutes, but rather is due to a free and easy moral concept on all sides.

As a group these negroes are carefree, happy and peaceable; crimes of violence unassociated with a sexual background are rare; their prodigality is inordinate and their sex appetite is enormous. Their economic status is low because their foresight is short; they are not heedful of the future because their past offers them little reason to expect a change.

METHOD OF COLLECTING INFORMATION

The equipment used in collecting blood specimens consisted of several 5 cc. Luer syringes and 20 gage needles, sterile 25 cc. bottles stoppered with corks and numbered serially, pans of soapy water, clean water and physiologic solution of sodium chloride, alcohol, cotton, tourniquets, and record forms. From 5 to 7 cc. of blood was drawn from one of the arm veins and squirted into a sterile bottle. A record was kept of the patient's name, age and sex, his residence (plantation) and any important physical disability (pellagra, or other illness). In front of the patient's name appeared the same serial number as occurred on the bottle. During hot weather bottles containing the specimens of blood

TABLE 2.—*Number of Farms and Ownership in Three Counties Studied*

County	Number of Farms	Farms Owned by Negroes	Farms Partly Owned by Negroes	Percentage of Farms Owned or Partly Owned by Negroes
Humphreys ...	3,463	126	4	4.0
Hinds	6,003	172	38	3.3
Bolivar	12,873	415	5	3.2

TABLE 3.—*Age Distribution, All Examinations*

Males	5	5–9	10–14	15–19	20–29	30–39	40–49	50+
Hinds	2	140	360	254	234	135	131	162
Humphreys	2	84	133	84	99	61	37	38
Bolivar	11	111	128	130	285	194	182	216
Bolivar (Mounds)	6	49	58	60	75	72	63	40
Total	21	384	679	528	693	462	413	506
Females								
Hinds	0	169	380	306	229	138	121	95
Humphreys	1	78	117	92	88	56	28	18
Bolivar	6	93	106	127	255	184	153	123
Bolivar (Mounds)	5	50	74	63	84	78	71	84
Total	12	390	677	588	726	456	373	320
Grand total.....	33	774	1,356	1,116	1,419	918	786	826

Total males	3,686
Total females	3,542
Grand total	7,228

9. 1925 Agricultural Census: United States Department of Agriculture, Washington, D. C.

were put in a mobile refrigerator as soon as they were drawn. During the winter the specimens were not iced until they were brought back to headquarters. Comparatively few hemolized or anticomplementary specimens resulted from this technic.

Syringes and needles were cleansed by being thoroughly washed in soapy water, and rinsed in clear water and in physiologic solution of sodium chloride. In addition, the needles were sterilized by immersion in 85 per cent ethyl alcohol.

The usual routine was to arrange with a planter to examine all of his tenants on a certain day. The planter would round up his negroes and bring them to a centrally located place on the plantation, where they were met by the field unit. Specimens were collected rapidly, often as many as 100 an hour.

Following the collection of specimens they were brought to headquarters and shipped to the laboratory in 5 gallon ice cream tubs well iced. The laboratory examination of these specimens was divided between the laboratory at the United States Public Health Service Venereal Disease Clinic in Hot Springs, Ark., and the Hygiene Laboratory of the Mississippi State Board of Health at Jackson, Miss. About two thirds of the

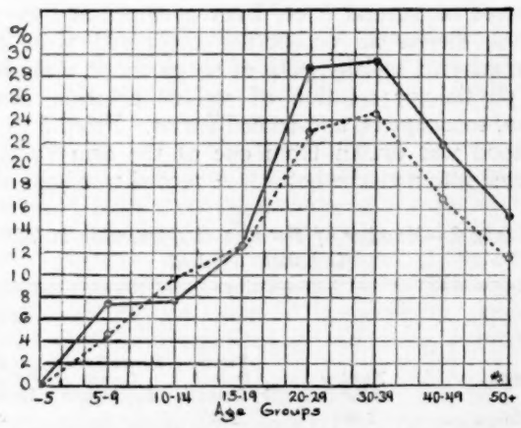

Chart 2.—Percentage of males and females, by age groups, showing positive complement fixation reactions: solid line with black circles, males; broken line with open circles, females.

total number of specimens were tested in the former laboratory.

At the Hot Springs Laboratory each specimen was examined by the Kolmer modification of the Wassermann reaction and by the Kahn test. At the Jackson Laboratory each specimen was controlled by tests with a lipoid and a cholesterolized antigen. There were no instances at the Hot Springs Laboratory in which the results of the two tests did not parallel each other. At the Jackson Laboratory all parallel positive tests were counted and those examinations in which the cholesterolized antigen test was 2 plus or higher, even in the absence of a positive result with the lipoid antigen, were called positive.

At the outset of the survey, each patient was given a physical examination, but after 500 examinations it was found that, under the conditions in which the work was being carried out, not enough information in addition to the results of the Wassermann examinations was being discovered to warrant the expenditure of time on this phase.

In all, 7,228 negroes were examined; they ranged in age from 3 to 92 years. Table 3 shows the distribution of this group according to age and sex.

Of this group, 1,212 showed positive complement fixation reactions. Table 4 shows the distribution of those reacting positively according to age and sex.

From the information in tables 3 and 4, table 5 was constructed to show the percentage infected in each age group according to sex.

TABLE 4.—*Age Distribution in Patients with Positive Reactions*

	5	5–9	10–14	15–19	20–29	30–39	40–49	50+
Males								
Hinds	0	10	30	33	62	27	25	17
Humphreys	0	6	14	8	19	18	8	9
Bolivar	0	5	7	19	103	73	47	51
Bolivar (Mounds)	0	7	2	7	15	19	11	10
Total	0	28	53	67	199	137	91	87
Females								
Hinds	0	10	30	23	40	20	14	11
Humphreys	0	4	12	14	28	17	4	3
Bolivar	1	2	14	26	77	69	36	14
Bolivar (Mounds)	0	3	10	11	23	14	10	10
Total	1	19	66	74	168	120	64	38
Grand total	1	47	119	141	367	257	155	125

Total males	662
Total females	550
Grand total	1,212

The information given in the tables is presented graphically in chart 1, which shows the percentage of examinations occurring in each age group, and in chart 2, which shows the percentage of males and females infected in each group.

COMMENT

The first question that arises in the discussion of the results of any survey is, How nearly does the rate quoted approximate the actual prevalence of the disease? In this group of examinations we are relying solely on complement fixation reactions. Likewise in this group all subjects examined were, to all intents and purposes, well. It is assumed that positive complement fixation reactions from acute febrile diseases can be ruled out as a complicating factor in digesting these data. There is, of course, no clinical yaws in this area. It seems fair to assume that a large proportion of the positive cases, probably well above 95 per cent, represent syphilis.

TABLE 5.—*Percentage of Positive Reactions in Each Age Group*

	5	5–9	10–14	15–19	20–29	30–39	40–49	50+
Males	*	7.2	7.8	12.6	28.7	29.6	22.0	17.1
Females	*	4.8	9.7	12.5	23.1	26.3	17.1	11.8

* The number examined in this group is too small to permit an accurate determination of percentages.

On the other hand, do these figures represent all of the syphilis in the group? It is felt that they do not. Just how long the complement fixation reactions remain positive after infection and without subsequent medication is not known. Certainly, in the negro, the administration of from two to four doses of some arsenical, intravenously, often causes a positive Wassermann reaction to become negative. The natural disappearance of the positive Wassermann reaction (whatever that may be) and the influence of medication which, although it causes the complement fixation reaction to

become negative, probably has little bearing on the subsequent course of the infection, certainly tend to cause an underestimation of the problem on the basis of positive reactions alone.

Reference to table 4 will show that in our series the groups from 10 to 20 years of age are larger than the normal population distribution would be, because of the examination of a proportionately large number of school children. Therefore, again, the actual number of cases of syphilis in the entire group is smaller than if the series had comprised a standard population group. Nevertheless on the basis of our figures alone, without correcting the age grouping in this collection of cases, there were 1,164 cases of syphilis among 6,421 apparently healthy negroes over the age of 10 years. Something of the gravity of the syphilis problem may be seen by putting the figures on a state-wide basis.

In 1925, in the rural sections of Mississippi, there was an all farm population of 10 years old and upward comprising 235,680 males and 236,266 females, a total of 471,946. In our series there were 634 cases of syphilis among 3,281 males over 9 years of age and 530 cases among 3,140 females above the age of 9, a rate, respectively, of 19.3 per cent and 18.0 per cent.

On the basis, then, of the farm census of 1925 there are about 55,500 negro males and about 42,500 negro females (a total of 98,000) over the age of 9, in the rural population of the state of Mississippi, who have syphilis as evidenced by positive complement fixation reactions.

CONCLUSIONS

1. The examination of 7,228 blood specimens from an unselected group of rural Mississippi negroes above the age of 9 years by complement fixation tests for syphilis showed positive reactions in 19.3 per cent of all males and in 18.0 per cent of all females examined. The rates of infection in the various age groups reach a maximum between the ages of 30 and 39 for both males and females.

2. It is pointed out that the positive results probably represent less than the actual amount of syphilis in the group.

3. The infection rates in this unselected group are roughly the same as those discovered at the United States Public Health Service Venereal Disease Clinic at Hot Springs, Ark., in a selected group who were seeking medical aid for previously diagnosed venereal disease.

4. These data suggest that, from a public health and economic point of view, syphilis is probably the major public health problem among rural Mississippi negroes today.

The Interplay of Differences.—By the interplay of the differences existing at the beginning of life with those that arise through later experience are brought about all the infinitely numerous kinds of diversities that we find among the individuals we meet in the world. By the interaction of the diverse individuals so produced, with each other and with their organic and inorganic environments, arise societies and civilizations.—Jennings, H. S.: The Biological Basis of Human Nature.

Clinical Notes, Suggestions and New Instruments

THREE NEW PROCTOLOGIC INSTRUMENTS*

DUDLEY SMITH, M.D., SAN FRANCISCO

When the electrocautery is used through a proctoscope the field is quickly obscured by smoke. The suction electrocautery shown in figure 1 was devised by me to overcome this difficulty. A tube runs down the shaft of the cautery to the distal end. To the proximal end of the tube is attached a rubber tube

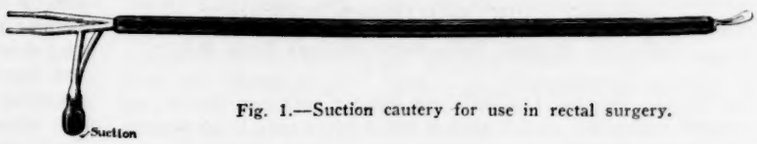

Fig. 1.—Suction cautery for use in rectal surgery.

running to a suction apparatus, and the smoke is sucked out as rapidly as it forms, insuring a clear view of the field at all times. I use Gray's universal suction pump on the water faucet and find it entirely satisfactory, but any suction apparatus can be used.

I have found this cautery useful in removing rectal and sigmoidal polyps. Beginning adenocarcinomatous change is so frequent even in small polyps that I believe they should be removed with the actual cautery, or if removed by a snare the base of the pedicle should be destroyed by the actual cautery. With the smoke removed and a clear field secured, the electrocautery may be used with safety; there is much greater danger of perforation if fulguration or electrocoagulation is used.

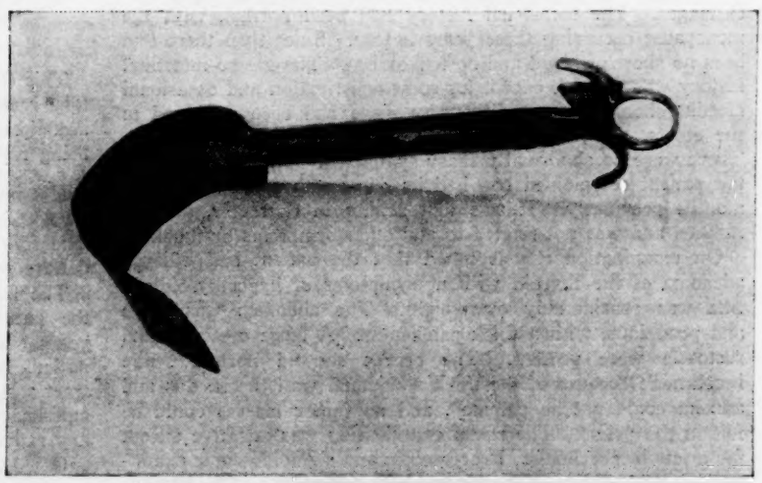

Fig. 2.—Modified deep blade for retraction.

Fig. 3.—Knife for deep dissection of peritoneum.

In the abdominoperineal resection of the sigmoid and rectum for cancer, I have at times found it difficult to secure and maintain good exposure of the sulcus between the bladder and the rectum in the male and between the uterus and the rectum in the female. I therefore modified the Horgan deep blade for the Balfour self-retaining retractor by substituting a flexible blade, 2 inches wide and 8 inches long, made of copper one-twentieth inch in thickness. This blade may be adjusted as to shape, and when it is placed behind the bladder or uterus and bent forward toward the pubis, wide exposure of the sulcus is secured. To avoid the slipping down of the bladder or uterus, out of the grasp of the blade, I have drawn over the blade a tube of

* From the Department of Surgery, University of California.
* Read before the American Proctologic Society, Detroit, May 13, 1929.

stockinet. This effectually holds the bladder or uterus forward and gives excellent exposure.

Exposure having been secured in the manner stated, the next step is incision of the peritoneum along the sides of the mesosigmoid and across the sulcus in front of the rectum. This is sometimes difficult to do without opening the underlying blood vessels. The probe pointed scissors used by Coffey serve well but deep in the sulcus are difficult to use. I devised the knife shown in figure 3 for this purpose. It is probe pointed and the curve is such that it runs along easily under the peritoneum, incising it from underneath and avoiding the blood vessels.

909 Hyde Street.

ABSCESS FROM SWALLOWED TOOTHPICK

DONALD C. DURMAN, M.D., AND FERDINAND BELZ, M.D.
SAGINAW, MICH.

We saw the case reported here about a year ago, but did not report it because we felt that it could be of only local interest. A recent editorial[1] has indicated to us a greater interest in this and similar conditions and therefore we report the case in detail.

REPORT OF CASE

A woman, aged 48, first came to one of us with a complaint of pain in the left side of the abdomen. The family history was negative. The past personal history threw light on the complaint. The patient was the mother of several children, all born normally and all living and well. There had been no miscarriages. The menstrual history had been normal, with the menopause occurring three years before. Since then there had been no show of blood and no leukorrhea. The gastro-intestinal history was normal, except for some constipation and occasional bleeding hemorrhoids. Otherwise there had been no blood in the stools, the shape and consistency of which were normal. There were no abnormal urinary symptoms. The pain of which the patient complained had had its onset rather insidiously six months previously. It was dull aching in character, did not radiate, and was not related to any other symptoms or function.

On examination it was noted that the patient had a large adenoma of the thyroid without symptoms of hyperthyroidism. She was considerably overweight. The abdomen was large and pendulous, with a thick panniculus. A large cystocele and rectocele were present. The cervix showed normal senile involution; because of the thick abdominal wall the fundus and adnexa could not be palpated, and no tumor masses could be felt in the pelvis. The rectal examination was negative except for a few hemorrhoids. Proctoscopic and sigmoidoscopic examination did not reveal any pathologic conditions. The kidneys could not be palpated. The liver and spleen seemed normal in size. In the left lower quadrant of the abdomen a tumor mass which seemed about the size of a grapefruit could be palpated. This moved with the abdominal wall, and was tender to palpation and dull to percussion.

The urine and blood were normal. No further laboratory studies were carried out. Our preoperative diagnosis was pedunculated ovarian cyst or diverticulitis.

At operation a low left rectus incision was made. When the pelvis was explored, the uterus, tubes and ovaries were found to be normal. Examination in the region of the tumor showed the sigmoid and omentum adherent to the parietal peritoneum of the anterior abdominal wall. They were freed by finger dissection and when brought into the incision were found to give evidence of a recent inflammation. The omentum was indurated and congested and on it was some fibrinous exudate. The sigmoid showed the same condition. The parietal peritoneum from which these structures had been freed could be felt roughened and apparently covered with the same exudate. On further exploration with one hand in the abdominal cavity and one palpating externally, the tumor mass that we had thought intra-abdominal could be felt deeply in the abdominal wall. The peritoneal incision was then closed. Dissection to the left of the incision in the thick fat of the abdominal wall led us to the tumor mass. It was about 12 cm. in diameter, and felt hard and not definitely circumscribed but firmly connected to the fat. On being cut into this mass proved to consist of hard, almost cartilaginous inflammatory tissue in the center of which was an abscess containing a piece of toothpick 4 cm. long. A stab wound for drainage was made directly over the abscess. A Penrose drain was also placed in the original incision and it was closed in the usual way. The patient made an uneventful recovery. When questioned later she could not recall ever having swallowed a piece of toothpick.

COMMENT

What must have happened in this case was that the patient probably swallowed a piece of toothpick. This traveled the length of the alimentary canal as far as the sigmoid, became lodged in one of the sacculations, and gradually perforated, became walled off by a protective fibrinous dam and omentum, and slowly penetrated the structures of the abdominal wall to the fatty layer. Cases referred to in the editorial cited have shown a similar course, the foreign bodies in each case becoming the nidus for an intra-abdominal abscess in the sigmoid area. Such cases teach the possibility of the additional diagnosis of abscesses of the peritoneal cavity or abdominal wall which must be kept in mind in the differential diagnosis of left lower quadrant tumors.

315 South Jefferson Avenue.

1. Abscess from Swallowed Bone, editorial, J. A. M. A. **94**: 35 (Jan. 4) 1930.

USE OF A RETAINED OR INLYING DUODENAL TUBE IN TREATMENT OF GASTRO-INTESTINAL COMPLICATIONS IN RENAL DISEASE*

HUGH H. YOUNG, M.D., BALTIMORE

This case, which demonstrates the great value of a duodenal tube retained for a long time in a patient with severe uremia, accompanied by nausea and vomiting, is, I believe, worthy of being reported:

REPORT OF CASE

History.—H. V., a man, aged 69, was admitted to the Brady Urological Institute, Johns Hopkins Hospital, Nov. 2, 1929. The following history was given by his physician, Dr. Ramon deLara of Santo Domingo:

The family and past histories had been negative, except that the patient had had slight symptomless hematuria for five years. The blood was discovered only on microscopic examination, and there were no symptoms referable to the urinary tract. He had never had any renal colic or passed a calculus, and had not suffered from pain in the back or loins or from any radiating pains. The general health had always been good.

Oct. 18, 1929, while mounting a horse, the patient was thrown on the concrete pavement. Although momentarily stunned, he insisted on remounting, and rode for one-half hour, after which he returned to his work and attended to his affairs for the next two days. He then felt quite indisposed, was found to have fever, and on the fourth day suffered a severe shaking chill, with a rapid rise in temperature to 103. There was never any pain in the region of either kidney or in the abdomen, and urination was normal. During the next week daily chills and fever occurred, and he continued to pass blood. Blood cultures were negative, and the blood urea was 42 mg. per hundred cubic centimeters.

October 31, as his condition was steadily growing worse and he was very septic, it was decided to bring him to the United States. As it was impossible to reach this country in less than twelve days by boat, the patient decided to come by airplane. A trimotored monoplane was secured for the trip. The patient was placed in a comfortable stretcher bed and was accompanied by members of his family and staff, in addition to Dr. deLara, two pilots and a radio operator, nine persons in all. The plane started from Santo Domingo at 5:45 a. m., crossed over the republics of Santo Domingo, Haiti and Cuba and the intervening sea, making three landings before crossing the straits to Florida, and landed finally in Miami. The entire trip covered about 1,300 miles and lasted eleven hours. After a delay of five hours in Miami, where the patient was put to bed in a hotel, he resumed his journey by Pullman car

* From the James Buchanan Brady Urological Institute, Johns Hopkins Hospital.

to Baltimore, where he arrived forty-five hours after leaving his home in Santo Domingo. He stood the trip by airplane well, although his temperature varied from 102 to 104. While crossing the straits of Florida, the flight was rough and the patient became considerably nauseated.

Examination.—On admission to the hospital the patient's temperature was 101, and shortly afterward he had a severe chill and a rise in temperature to 103. He was considerably nauseated, and during the following week was greatly disturbed by vomiting, being unable to take much food or water. The urine was acid and contained numerous pus cells and bacilli, but the blood had disappeared. On physical examination the chest and abdomen were normal, except for a slight tenderness in the lower left quadrant. The prostate was slightly indurated on the right side, and there was no evidence of obstruction to urination. A roentgenogram showed numerous large calculi, some of the stag-horn type, in the left kidney. The blood urea had risen to 58 mg. The phenolsulphonphthalein excretion was 35 per cent for the first hour and 12 per cent for the second, a total of 47 per cent for two hours. The leukocytes numbered 10,000, and the hemoglobin was 78 per cent. The blood was negative for parasites. The patient remained very drowsy and was unable to take fluids or food because of nausea and vomiting.

During the next month it was necessary to combat uremia, intermittent septicemia, nausea, vomiting and poor renal function, with high blood urea. The following ward notes give the condition of the patient and the therapy employed:

Clinical Course.—November 3: Two more chills. Temperature 103. Drowsy; constant hiccup; not eating or drinking; leukocytosis 14,600; 500 cc. of 5 per cent dextrose given intravenously. Blood cultures sterile; urine cultures showed encapsulated gram-negative bacilli.

November 6: Has taken little food. Submammary hypodermoclysis of physiologic solution of sodium chloride.

November 9: Chill, temperature 103. Patient weaker. Takes little food. Subpectoral infusion, salt solution, 600 cc. Five per cent dextrose, 500 cc., given intravenously.

November 12: Chills, temperature 102; blood cultures showed massive growth of gram-negative bacilli. Nausea continued.

Cystoscopy did not show any residual urine; the bladder capacity was 375 cc. There was no prostatic enlargement. The ureters were catheterized. The urine from the right side was purulent and contained many gram-negative bacilli. The appearance time of phenolsulphonphthalein was two and one-half minutes; 15 per cent was eliminated in ten minutes. The urine from the left side was purulent and contained gram-negative bacilli. Phenolsulphonphthalein appeared in three minutes; 5 per cent was eliminated in ten minutes. A left pyelogram showed hydronephrosis above the stag-horn calculus.

November 20: Patient continued to do badly. Nausea, vomiting and inability to take food or drink. Evidently growing weaker. A duodenal tube was passed through the nose and fastened in place. There was no great discomfort and liquids were started at once. The total fluid intake in the next twenty-four hours was 3,000 cc., accompanied by immediate improvement in the patient's condition.

November 22: The nasal tube was removed and reinserted through the opposite nostril. The temperature was normal.

November 30: The patient had been fed through a duodenal tube for ten days with marked improvement. The tube had been removed the day before, but the patient had refused to take food by mouth, which necessitated reinsertion of the tube. The temperature was now normal; the blood urea had dropped from 85 mg. to 36 mg. and the phenolsulphonphthalein excretion had increased from 47 per cent to 65 per cent in two hours. The patient did not suffer any pain.

December 4: As the patient still refused to eat, it was necessary to reinsert the nasal tube. The patient would now drink water by mouth while the tube was in place.

December 6: The duodenal tube in the nose was continued. The patient now ate a peculiar tropical food mixture, consisting of bananas, onions and eggs, with much relish, and drank water, although the duodenal tube was still in place.

December 8: The temperature was now normal. The patient's uremia, nausea and vomiting had disappeared as a result of intravenous and subcutaneous injections and the continued use of the duodenal tube, which had been removed the day before. As he continued, however, to have slight nausea and food was distasteful, it was feared that another attack of uremia was imminent. It was decided to carry out nephrectomy to remove the large stone-bearing kidney, which was evidently responsible for the intermittent septicemia, infection of the opposite kidney, impairment of renal function and uremia.

Operation.—December 9, the Young operation was performed under ethylene anesthesia, extraperitoneal nephrectomy being performed on the left side. The kidney was large and lobulated; the cortex was thin, and the pelvis filled with large calculi. The patient stood the operation well.

Postoperative Course.—The patient reacted well to the operation but refused to take liquids. A submammary injection of physiologic solution of sodium chloride was done and 5 per cent dextrose was given by rectum. The following day, as nausea and vomiting continued, it was decided to reinsert the duodenal tube. This was continued for the next nine days, during which time the patient received food and drink through the tube. The nausea gradually disappeared. He was finally able to take water and then food by mouth, with the duodenal tube still fastened in his nose. On the ninth day the patient had so greatly improved that it was possible to remove the duodenal tube permanently, and he was then able to drink and eat quite well. Thereafter he made a rapid and satisfactory convalescence, and was discharged, December 31, three weeks after the operation. The wound at that time was healed, except for a small granulating area. The urine was only slightly purulent. The blood culture was normal (0.25 Gm. per liter). A phenolsulphonphthalein test showed: appearance time, seven minutes; output first half hour, 38 per cent; total in two hours, 65 per cent. The patient returned home by ship to Porto Rico and from there by airplane on the following day across Porto Rico and the intervening seas to Santo Domingo, where he arrived in excellent condition on the twenty-seventh day after the operation.

COMMENT

This case has been presented in detail because it exemplifies the value of modern methods of transportation for desperately ill patients, the use of intravenous therapy to combat uremia and septicemia, and the employment of the duodenal tube in combating chronic nausea and vomiting. The duodenal tube in this case was used almost continually for a month, remaining in one nostril for three or four days and then being removed and reinserted, after a few hours' rest, through the other nostril. Whereas previously the patient had refused to take water or food by mouth, it was possible to give, by means of the duodenal tube, liquid food and water in large amounts with cessation of nausea and vomiting and prompt beneficial effect on the uremia, sepsis and general condition of the patient. Within three weeks his condition had so greatly improved that nephrectomy, to remove the badly diseased calculous kidney, which was the source of the septicemia and the infection of the other kidney, could be undertaken. During the postoperative period the uremic condition returned, and again the duodenal tube was employed. It is safe to say that the excellent result obtained in this case was largely due to the use of an inlying duodenal tube for a period of a month, in addition to the intensive intravenous and subcutaneous therapy described. I have also used an inlying duodenal tube for relief of uremic vomiting in cases of renal impairment due to enlarged prostate. In such a case an inlying urethral tube (catheter) was used simultaneously with the inlying duodenal tube.

This method of treatment had previously been employed by me in this clinic in several other cases of persistent nausea and vomiting, and in my opinion it furnishes a very important therapeutic aid in many types of renal disease associated with gastro-intestinal complications. In this way food and water in large amounts, which are so necessary in the elimination of infection and in improvement of the renal function, may be satisfactorily employed. It is interesting to know that the inlying duodenal tube may be used for a month or more with little discomfort and no apparent injury to the nasal passages.

Special Articles

HOUSEHOLD MECHANICAL REFRIGERATION

WITH SPECIAL REFERENCE TO THE TOXICITY OF THE REFRIGERANTS UTILIZED: REPORT 2 OF THE COMMITTEE ON POISONOUS GASES OF THE AMERICAN MEDICAL ASSOCIATION *

DRAFTED FOR THE COMMITTEE BY CAREY P. McCORD, M.D., CINCINNATI

Artificial refrigeration in transportation, in storage and in households in connection with food supplies is a public health achievement of the first magnitude. It is obviously desirable that faulty developments in this important public health field should not defeat its purpose of adding to the well being of human life. Since refrigeration practices have recently been the direct cause of a number of human deaths in households, and have caused nonfatal abnormal states both in factories where refrigerators are made and in households, the Committee on Poisonous Gases of the American Medical Association submits this preliminary estimate of the nature and extent of the dangers.

The term "mechanical refrigeration," as used in this report, includes all types of artificial refrigeration procured by means other than ice, chilled water or air. In particular, this term is referable to the compression and absorption types of refrigerators now widely employed for household purposes. The term embraces those varieties using gas, electricity or kerosene for heating purposes as well as those employing electricity for the motivation of parts.

REFRIGERANTS

The chemical through the use of which chilling is obtained is the refrigerant. Among the commoner substances now in use as refrigerants are: sulphur dioxide, ammonia, methyl chloride, ethyl chloride, carbon dioxide, butane and propane.

Since mechanical refrigeration for households is still in a state of marked lability, it is a daily possibility that a new type may arise, using entirely dissimilar refrigerating mediums.[1] For this reason a list [2] is given in table 1 of some of the numerous substances that may be employed.

SYSTEMS OF HOUSEHOLD MECHANICAL REFRIGERATION

Single Unit versus Multiple Unit Systems.—Mechanical refrigerators in homes, save for compactness and refinements, are similar to the refrigerators long in use in industry for various purposes. Household refrigerators may be of either the compression or the absorption type. The former is well known to the public as requiring a motor and thus having moving parts. The latter requires heat, which commonly is supplied by a gas burner. The attainment of refrigeration in each depends on the well known physical principle that liquids and solids passing into gaseous states take up heat from their environment.

The application of mechanical refrigeration for household purposes has led to two other large divisions —the single unit, designed primarily for the separate house, and the multiple unit system, designed for apartments. By the term "multiple refrigeration systems" is meant all systems in which the refrigerant from a common source is delivered to two or more separate cabinets, each containing one or more evaporators.

Each of these systems has certain disadvantages with reference to health and safety. The objections to the self-contained single unit center about two items, namely, the noise and vibration of running parts in the compression systems, and the heat of a gas burner in the absorption systems. Some overcome vibration by having compression units in the basement when possible. The ideal single unit system is one in which the heat given off is dissipated at a distance from the refrigerator. This is possible in houses but not in apartments.

TABLE 1.—*Substances that May Be Used as Refrigerating Mediums*

Glycerin	Dichlor methyl ether
Pentachlorbenzene	Heptane
Trichlorbenzene	Ethylene trichloride
Ethylene-glycol	Hydrogen sulphide
Methyl aniline	Trimethylene
Aniline	Methyl ether
Phenol	Methylamine
Dichlorbenzene	Trimethylamine
Decane	Dimethylamine
Chlorpydridine	Methyl ethyl ether
Chlortoluene	Ethyl ether
Pentachloretane	Dichlormethane
Nonane	Carbon disulphide
Acetylene tetrachloride	Diethylamine
Xylene	Acetone
Amyl alcohol	Methyl alcohol
Chlorobenzene	Hexane
Octane	Carbon tetrachloride
Tetrachlorethylene	Ethyl alcohol
Butyl alcohol	Benzene
Pyridine	Propyl alcohol
Toluene	Triethylamine

The objections to the multiple systems are more numerous and definite.[3] The practical but not necessarily inherent dangers of most of the present multiple systems for domestic use are:

1. Compressors located indiscriminately throughout cellars and basements, regardless of stairways, elevators or dumbwaiter shafts, and without adequate means of ventilation to take away the "fumes" of escaping refrigerants.

2. Very little, if any, protection provided around the compressor units to prevent accidents to any one inspecting or passing them.

3. Soft metal tubing run without any mechanical protection, being placed on side walls and around cornices and across ceilings without any pretense, in many cases, of proper supports.

4. Tubing passing up through floors or through partitions without mechanical protection; improperly made bends; numerous joints in cellars and basements, and dangerous connections made at the refrigerator boxes in the pantry or kitchen.

5. Improper type of valves; valves without any handles or means for closing them without a wrench; valves capped up

* The committee consists of H. Gideon Wells, M.D., chairman; Yandell Henderson, Ph.D.; L. R. Thompson, M.D.; P. N. Leech, Ph.D., and Carey P. McCord, M.D. This publication is designed only as groundwork material and does not necessarily indicate the trend of formal reports that may follow further inquiry.

1. Since the preparation of the present report, this forecast has become actual in the development, under excellent auspices, of fluorine compounds as refrigerants, notably difluoro-dichlor-methane. These new compounds are said to meet practically all the requirements of the optimal refrigerant and especially to be nontoxic. No opinion as to their merits may be expressed by this committee for the time being, pending further developments (Midgley, Thomas, Jr., and Henne, A. L.: Organic Fluorides as Refrigerants, J. Indust. & Engin. Chem. **22**: 542 [May] 1930).

2. Taylor, R. S.: Heat Operated Refrigerating Machines of the Absorption Type, Refrigerating Engineer **17**: 136 (May) 1929.

3. Wilson, Fremont: Dangers of Multiple Systems of Household Refrigerators, Ice and Refrigeration **75**: 469 (Dec.) 1928.

so that two wrenches become necessary, one to take off the cap and another to close the valve.

6. Unlimited amount of refrigerant in any one building.

7. Irritant and inflammable gases to any amount, depending entirely on the number of evaporators or refrigerators supplied.

8. Nothing, in some systems, to warn one of danger in case of a leak, or if a fire should occur.

9. Tubing and pipes, if any, not marked to indicate what they contain, and therefore in time of fire becoming an unknown and dangerous risk, especially if such tubes or pipes contain "irritant gases."

10. Refrigerator boxes not secured in place, therefore being a constant menace, as when they are moved there must of necessity be an immediate risk of starting a leak in two or more places: either in the box or at the joints where the box tubing joins.

Obviously, the multiple system is potentially a far greater source of harm than the single unit household refrigerator. The whole of the large amount of the refrigerant in the reservoir for an entire apartment building may escape into any one room, or any one apartment, in the event of a leak. This increase in danger is attributable not only to the greater quantity [4] of refrigerant and higher pressures, in some instances, but also in part to the fact that contractors and subcontractors not connected with the manufacturer of the refrigerator may be called on to install piping or connections for these multiple unit systems, and thus get away from the high standards that may attend the manufacture of the cabinet and the compressor. Installations of this character are at times let out under conditions of competitive bidding. The successful bidder may find it convenient to utilize inferior materials and inferior workmanship for these installations. Of this, Connolly [5] states:

> No one realizes more fully than the public health worker the immense value of adequate refrigeration in conserving health by the preservation of food; but we cannot allow ourselves to be misled by the arguments of those who advocate cheap refrigeration at the expense of safety. It is as illogical to permit unsafe mechanical refrigeration in order to reduce its cost to the poor classes as to permit a poor man to drive an automobile without brakes for the reason that brakes cost money.

INDIVIDUAL REFRIGERANTS

Fundamental Properties of Typical Refrigerants.—Prior to discussing the properties of refrigerants actually in common use, it seems desirable to specify, from the point of view of health and safety, the properties and characteristics of an ideal refrigerant:

1. It should be noninflammable.
2. It should not be explosive in any mixture of air or with any substances likely to be found in the refrigerator system or in the household.
3. Relative nontoxicity should prevail under all conditions.
4. There should be an inoffensive but characteristic odor.
5. Visible fumes should not be formed.
6. The gas should possess the property of lending itself to the detection of leaks.
7. Its nature should be such as to call for mechanical devices operating without disturbing noises or heat, or related physical conditions.
8. It should operate at low pressure.
9. It should not cause corrosion of metal or other harmful effects on any portion of a refrigerating system.
10. There should be no deleterious effects on food, in the event of leakage.
11. No deterioration or decomposition should occur, leading to the formation of secondary toxic substances or substances that may act harmfully.
12. The gas should not have to be replenished frequently.

The extent to which the household refrigerants in common use attain to these requisites is shown in table 2.

TABLE 2.—*Relative Toxic Properties of Individual Refrigerants* *

	Refrigerants					
	Ammonia	Butane	Carbon Dioxide	Ethyl Chloride	Methyl Chloride	Sulphur Dioxide
Toxic properties: immediate effects on the body	5	1	2	3	4	6
Toxic properties: delayed effects on the body	1	1	1	1	6	1
Inflammable properties: basis of fire precaution	3	6	1	5	4	1
Warning properties	1	4	6	4	4	1
Refrigerating efficiency due only to physical properties of refrigerant	2	5	6	2	4	1
Pressure developed by the gas in the machine, determining its required strength	5	2	6	1	4	3

* 1 indicates the most desirable of the six considered; 2, the next desirable, and so on.

Carbon Dioxide.—This substance is little used for refrigeration purposes in small systems because of the necessity of high pressure, and thus heavy machinery. One thousand pounds per square inch is not an unusual pressure in apparatus for the liquefaction of carbon dioxide.

Carbon dioxide is present even in the purest air. Over the ocean, or on a mountain top, the atmosphere contains 0.03 per cent by volume. In cities, and especially around factories and in crowded halls, the amount may rise some hundredths of 1 per cent. These amounts in themselves are of no importance to health but are significant of the amounts of other and more harmful substances accompanying carbon dioxide, as, for instance, in smoke. As much as 1 per cent of carbon dioxide is without noticeable effect on human beings during rest. Even in a crowded and badly ventilated hall the amount of carbon dioxide rarely rises to more than a few tenths of 1 per cent. The discomfort and ill effects of bad ventilation are therefore not usually due to carbon dioxide itself or to the correspondingly slight decrease of oxygen in the air but to other factors, such as excessive moisture and high temperature, and lack of air motion. When a man breathes air to which carbon dioxide in increasing amounts is added, a distinct augmentation of breathing is usually observed at 3 or 4 per cent. Deep breathing, like that after vigorous physical exertion, is induced by from 5 to 7 per cent. Much higher percentages of carbon dioxide may be breathed without ill effect other than heavy panting, so long as the supply of oxygen is not considerably decreased. Deaths from carbon dioxide occur around silos and breweries, and in grain elevators and the holds of ships containing fruit or organic material undergoing slow oxidation. In such places the production of carbon dioxide involves a

4. Reference is made to the Refrigeration Installation Code of the National Board of Fire Underwriters, 1928. This code specifies a maximum of 100 pounds of refrigerant for any one multiple system. See also 1930 Code.

5. Connolly, J. I.; Claffy, T. J., and Aeberly, J. J.: Difficulties Encountered in the Control of Mechanical Refrigeration, Am. J. Pub. Health 20: 252 (March) 1930.

corresponding consumption and decrease of the oxygen in the air. When one third of the oxygen has been thus consumed, distinct ill effects begin to be evident. When one half or two thirds of the oxygen has been consumed, the conditions become dangerous to life.

Carbon dioxide is not inflammable or explosive and has an actual tendency to smother any kind of combustion. Carbon dioxide has no corrosive effect on copper, copper alloys, iron or steel.

Leaks of carbon dioxide gas are difficult to locate for the reason that this gas is without warning properties, being colorless, odorless, and stable under ordinary conditions.

Though possessing some of the qualities of the desirable refrigerant, carbon dioxide may not be regarded as especially acceptable.

Dry Ice (Solid Carbon Dioxide).—Solid carbon dioxide is destined to have an increasing place in refrigeration. At the present time this material is principally utilized by the mere inclusion of "chunks" of it within containers of perishables; for example, within a metallic ice cream container. The temperature of dry ice is approximately — 109.3 F. The amount of heat that this material is capable of absorbing is roughly twice that involved in the melting of water ice.

Just as Pusey, in 1905, made use of solid carbon dioxide for the destruction of pathologic cutaneous tissues, so will destruction come about in normal tissues from the handling of this substance at its low temperature. Already numerous cases are accumulating of sloughing of the flesh of the fingers and of neuritis following the manipulation of dry ice by hand in commercial pursuits. The rate of evaporation of dry ice is so slow as to render unlikely asphyxiation due to displacement of the oxygen in the air by inert, non-life supporting carbon dioxide. In the shipment of large quantities of this dry ice some danger may be the lot of baggage car men, because of the fact that a 10 per cent evaporation in twenty-four hours is common. In sufficiently large lots, this danger may be serious.

Silica Gel.—This substance is not a refrigerant but an adjuvant to refrigeration. It absorbs vapors so rapidly that the rate of evaporation of the liquid from which the vapor comes is accelerated, and this evaporation absorbs heat. At the present time the use of silica gel refrigeration is largely restricted to large scale operations, such as the chilling of refrigerator cars. Even in this field of endeavor, such refrigeration is still in the experimental stage. Certain properties of silica gel are so favorable to refrigeration that its extensive application to household refrigeration is a probability.

Silica gel is a hard glassy material, with the appearance of clear quartz sand. It is made from sodium silicate and sulphuric acid. Chemically silica gel is inert toward practically all substances. The term "gel" is an unfortunate one, in that a gelatinous mass is implied. This is not the case. The gel is an exceedingly porous body with traversations far below visual detection. Often a granule of silica gel is compared to a pile of cannon balls, in order to portray the canaliculated structure of the former. This structure paves the way for the absorption of large quantities of gases or vapors. These substances may be removed by activating the silica gel by heat. This process of absorption and activation may be carried on indefinitely, without changing the physical structure of the gel.

This substance, as utilized in refrigeration, is not at this time known to be hazardous to health.

Methane.—Methane, propane, butane and isobutane are hydrocarbons of the methane series and are essentially simple asphyxiants, although propane and butane have some anesthetic properties. These hydrocarbon gases are combustible and explosive.

Ammonia.—In Hull's "Monograph on Household Refrigeration," ammonia is listed as inferior only to sulphur dioxide among all refrigerants. This gas has a characteristic odor and is highly irrespirable. Ammonia, in the form of ammonium hydroxide, may act injuriously on local application to the skin (where it penetrates deeply, and may cause blisters) and on ingestion or inhalation. Under most circumstances the harm is local rather than systemic, laryngeal edema being a characteristic lesion.

Henderson and Haggard [6] state:

> The alterations in respiration, and the action of the heart as the result of inhaling ammonia, are produced reflexly from the irritation of the upper respiratory tract. This reaction consists in a general vasoconstriction and considerable increase of breathing; if the concentration is high, respiration is stopped. The effects of inhaled ammonia are entirely upon surface tissues; none is absorbed.

Table 3 is taken from their monograph.

TABLE 3.—*Physiologic Response to Various Concentrations of Ammonia*

	Parts of Ammonia per Million Parts of Air
Least detectable odor	53
Least amount causing immediate irritation to the eye	698
Least amount causing immediate irritation to the throat	408
Least amount causing coughing	1,720
Maximum concentration allowable for prolonged exposure	100
Maximum concentration allowable for short exposure (½ to 1 hour)	300 to 500
Dangerous for even short exposure (½ hour)	2,500 to 4,500
Rapidly fatal for short exposure	5,000 to 10,000

Ammonia under high pressure may form an explosive mixture, especially in combination with oil vapor. It is combustible when admixed with air, the proportion being 16.1 per cent by volume lower limit, 26.4 per cent upper limit.

Ammonia should not be allowed to come in contact with red hot metal or such appliances as acetylene torches, as high temperatures tend to decompose the ammonia and pave the way for explosions of its constituent gases.

Ammonia will not harm iron or steel under ordinary conditions, but it does exert a deleterious action on brass and similar alloys.

Leakage of ammonia in small amounts may be located by its characteristic odor, and through the use of moistened red litmus paper. Also, when the vapors from concentrated hydrochloric acid are brought into the presence of suspected leaks of ammonia vapors, white fumes will be formed if ammonia is present.

Sulphur Dioxide.—Sulphur dioxide is the most widely used refrigerant on a small scale. From the point of view of refrigerating efficiency, it is ordinarily

6. Henderson, Yandell; and Haggard, H. W.: Noxious Gases, New York, Chemical Catalog Company, Inc., 1927, p. 126.

rated as the most suitable refrigerant. It likewise stands at the top of the list as a respiratory irritant, although serious injury to the lungs is potential for normal adults rather than actual, owing to the fact that this substance is so highly irrespirable and so irritating that slight leaks produce prompt warning of its presence.

Table 4, also taken from the monograph by Henderson and Haggard, shows the physiologic response to various concentrations of sulphur dioxide.

TABLE 4.—*Physiologic Response to Various Concentrations of Sulphur Dioxide*

	Parts of Sulphur Dioxide per Million Parts of Air
Least detectable odor	3 to 5
Least amount causing immediate irritation to the eyes	20
Least amount causing immediate irritation to the throat	8 to 12
Least amount causing coughing	20
Maximum concentration allowable for prolonged exposure	10
Maximum concentration allowable for short exposure (½ to 1 hour)	50 to 100
Dangerous for even short exposure	400 to 500

Sulphur dioxide, as manufactured, is likely to contain water, which in turn leads to acid formation and ensuing corrosion. This situation necessitates careful dehydration and purification of the sulphur dioxide.

Concentrated sulphur dioxide gas is dangerous and is irrespirable. Low concentrations are offensive and momentarily irritating, but no lasting harm is known to arise. The demarcation between these two states is difficult to establish, and the same concentration may affect different individuals in a dissimilar manner. Contrary to the somewhat popular belief, there is little to support the notion that this gas is beneficial to persons with respiratory lesions. On the contrary, a bronchitis is frequently aggravated.

The locations of leaks of sulphur dioxide are easily detected by its characteristic odor, and with the use of a little ammonia gas.[7]

Sulphur dioxide is wholly inert as to inflammability and explosion.[8]

Ethyl Chloride.—Commonly, in a discussion of refrigerants, ethyl and methyl chloride are grouped together. Methyl chloride has now become known to be more toxic than ethyl chloride, and recent experiences justify the consideration of these products in separate categories. However, it cannot be maintained that ethyl chloride is entirely harmless. This substance is a well known local and general anesthetic. For general anesthesia, not more than 5 or 6 cc. is ordinarily required. For prolonged anesthesia its use is regarded as undesirable and dangerous. Fatalities are well known in medical circles from its improper application, and the dangers from its use in general anesthesia are like those of chloroform. Unlike methyl chloride, the decomposition products of ethyl chloride within the body are eliminated with sufficient rapidity not to be harmful. Whenever the concentration of ethyl chloride in the blood reaches 0.2 Gm. per liter, unconsciousness may supervene, and when the concentration reaches 0.4, death may ensue. When this narcotic substance is used for household refrigeration, disasters may be expected in the event of major leaks into confined areas.

Ethyl chloride will burn in certain proportions of air. The lower limit in air is 4 per cent; the upper limit, 14.8 per cent. To prevent this inflammability, methyl bromide has been added. Methyl bromide exerts little extinctive action on ethyl chloride mixtures with air, provided the ignition source is strong.[9] It is extremely poisonous.

Methyl Chloride.—To methyl chloride the finger of accusation has been pointed as the causative factor of refrigerator deaths under domestic conditions. The absence of known deaths from ammonia and sulphur dioxide from refrigerators in households does not necessarily indicate that methyl chloride is always an agent of greater toxicity. In terms of parts per million, methyl chloride is far less toxic as a producer of immediate harm than either ammonia or sulphur dioxide. Unlike these substances, the action of methyl chloride may be two phased. Its initial action is that of a narcotic, akin to the chloroform type of anesthetic. Its secondary action is probably due to decomposition products in which methyl alcohol, or some decomposition substance closely related to methyl alcohol, is the prime harmful factor. In the light of Kauffman's observations,[10] it is probable, but as yet unproved, that methyl chloride in long used refrigerator systems may already have decomposed in part, so that its two actions possibly may be exerted simultaneously on exposed persons.

Review of Literature: The first reference found in the literature concerning the toxicity of methyl chloride is to the work of Eulenberg.[11] This worker employed pigeons and other birds, and obtained evidence of a narcotic action, as evidenced in staggering and falling. In 1879, the British Medical Association [12] investigated methyl chloride for its value as a practical anesthetic. As employed by the association investigators, in alcoholic solution, apparently no great value was attached to it for this purpose. The first impairment associated with refrigeration appears to have been reported by Gerbis [13] in 1914. Two repair men doing work on an ice machine, in which methyl chloride was utilized, developed characteristic manifestations now known to result from methyl chloride action. Roth,[14] Baker [15] and Schwartz [16] have reported similar observations, to which further reference will be made in a later section on industrial poisoning.

The Chicago series of cases (ten deaths and nineteen nonfatal cases), which are the first known to have arisen under domestic conditions, have been reported by Kegel and his associates.[17] Exact toxicologic studies

7. Moyer, D. T., and Cross, R. J.: Automatic Apparatus for the Determination of Small Concentrations of Sulphur Dioxide in Air, Indust. & Engin. Chem. **20**: 645 (June) 1928. A general discussion of methods for the detection of sulphur dioxide.

8. Johnston, C. W.: Sulphur Dioxide, Refrigerating Engineering **15**: 61 (March) 1928. A discussion of the general properties of sulphur dioxide.

9. Jones, G. W.: The Flammability of Refrigerants (Mixtures of Methyl and Ethyl Chlorides and Bromides), Pittsburgh Experimental Station, U. S. Bureau of Mines, J. Indust. & Engin. Chem. **20**: 367 (April) 1928.

10. Kauffman, H. M.: Personal communication with H. M. Baker, M.D., in the preparation of his brochure Industrial Methyl Chloride Poisoning, Am. J. Pub. Health **20**: 291 (March) 1930.

11. Eulenberg: Handbuch der Gewerberg für Hygiene, 1876.

12. Value of Methyl Chloride as a Practical Anesthetic, Report of British Medical Association, Brit. M. J. **1**: 1 (Jan. 4) 1879.

13. Gerbis: München med. Wchnschr. **61**: 879, 1914.

14. Roth: Schweiz. Ztschr. f. Unfallkinde **17**: 169, 1923.

15. Baker, H. M.: Intoxication with Commercial Methyl Chloride, J. A. M. A. **88**: 1137-1138 (April 9) 1927.

16. Schwartz: Deutsche Ztschr. f. d. ges. gerichtl. Med. **7**: 278, 1926.

17. Kegel, A. H.; McNally, W. D., and Pope, A. S.: Methyl Chloride Poisoning from Domestic Refrigerators, J. A. M. A. **93**: 353 (Aug. 3) 1929.

on animals have been made by the U. S. Public Health Service.[18] A second publication by Baker [10] has added large numbers of industrial cases to his earlier small series.

Moyer and Fittz [19] state that "when more than 10 per cent by volume of methyl chloride is in the air it acts as an anesthetic, and larger concentrations of the vapor may produce death by suffocation. Because of this tendency to produce unconsciousness, it is not so safe as sulphur dioxide, which is more irritating and consequently produces a constant urge to obtain pure air."

Clinical Manifestations: The symptomatology of poisoning of human beings by methyl chloride has been markedly uniform in the various outbreaks that have developed. The only significant variations result from the two phases of this disease; namely, the initial narcotic action, and the subsequent impairment due to decomposition products. A third type of manifestations arise in industry where, ordinarily, overwhelming exposures do not take place but small exposures continue over long periods of time. The manifestations here mentioned with reference to the first two types are largely derived from the article by Kegel and his associates,[17] while the third type is best described by Baker.[20]

The Kegel report is based on twenty-nine cases of poisoning with ten deaths, beginning in August, 1928. Kegel [17] says:

> Methyl chloride gas produces a characteristic clinical picture, of which the outstanding symptoms are drowsiness, mental confusion, coma, nausea, vomiting, and in severe cases convulsions. The temperature, pulse and respiratory rate are all increased, and anuria usually occurs.
>
> The blood picture is suggestive of a primary anemia, with practically no regeneration during the first week. Hemoglobin falls with the red count and there is a moderate leukocytosis. The blood pressure is usually decreased.
>
> Examination of the urine indicates transient acute nephritis. Formic acid was found when the test was made early.
>
> The sequelae noted are suggestive of injury to nerve cells, followed by progressive degeneration. Human cases post mortem showed practically the same pathologic changes as experimental animals killed by exposure to low concentrations of methyl chloride gas.

The original report supplies extensive observations as to the symptomatology, physical observations, studies of the blood and urine, postmortem observations, and sequelae. The treatment recommended is essentially that later referred to in connection with cases of industrial origin.

In industrial cases, the symptomatology reported by Baker [10] is as follows:

> vertigo, staggering gait, drowsiness, ptosis of the eyelids, anorexia, loss of weight, nausea sometimes accompanied by vomiting, visual disturbances, which varied from slight blurring to diplopia, dysphagia in three cases, and intractable hiccup in one. Insomnia occurred late in many and was a very distressing symptom. As the cases cleared up, a fine tremor was noticeable for several days to weeks after the symptoms had apparently subsided. . . . The symptoms subsided slowly, averaging seven to twenty-one days for recession. Only one case was left with subsequent injury. This was footdrop, which developed in 1925, at the time of one patient's attack, and persisted to June, 1929, when the patient was last seen. . . . The chief diagnostic signs are: progressive drowsiness, mental confusion, weakness, inability to coordinate muscles, nausea, visual disturbances, and the presence of formates and acetone in the urine of exposed individuals.

Like ethyl chloride, methyl chloride is without distinctive warning features, and is inflammable in certain mixtures of air, the range being, by volume, from 8.25 to 18.7 per cent, as the upper limit.[9]

It is the opinion of the committee, after this brief study of the health and safety factors of commonly used refrigerants in household and industrial systems, that none closely approach the ideal refrigerant, and that those more commonly employed may, under fortuitous circumstances, prove to be definitely toxic.

INDUSTRIAL POISONING FROM CHEMICAL REFRIGERANTS

The scope of the present paper does not extend to any comprehensive consideration of industrial poisoning from refrigerants. Briefly, it may be pointed out that some industrial hazards exist. These arise in the manufacture, purification and installation within the refrigerators of such substances as ammonia, sulphur dioxide and methyl chloride. Obviously, the same concentration of these gases will bring about an equal degree of harm for normal adults, whether exposure takes place in the factory or in the home.

Ammonia.—The history of ammonia refrigeration is marked by large numbers of refrigerator catastrophes. An historic example may be found in the classic paper of Fairbrother.[21] Four men were engaged in the making of an ice machine. A large tank, or vat, broke, allowing ammonia to flow over the floor and filling the room with ammonia vapors. Within fifteen minutes one person was dead, having become unconscious after three minutes of exposure; the second man died within two hours, having passed through a stage of maniacal delirium, with marked disturbances of the heart and respiration; a third worker was apparently less ill, was conscious and ambulatory, but complained of a little difficulty in breathing. Within five hours, however, he died, presumably from edema of the respiratory tract. The fourth workman survived, although totally disabled.

Disasters of this sort are far less frequent at present, owing to better mechanical construction, a greater awareness on the part of the worker of the dangers of ammonia, and an understanding of suitable measures for the safe handling of ammonia.

In most factories employing ammonia or making ammonia, there is a continuous odor of this substance. Ordinarily any such concentrations are entirely innocuous. Even the casual visitor is not irritated by any such small quantities. Ammonia burns of the skin are frequent wherever there is an exposure. Inflammation and edema of the respiratory tract characterize severer industrial lesions.

Sulphur Dioxide.—The commonest industrial lesion results from the spraying of minute streams of liquid sulphur dioxide into the eyes of workmen in the process of testing refrigerator circuits. The eyes are frozen, which painful lesion is followed by intense inflammation, with necrosis in severe cases. Men exposed to this risk should always wear goggles.

18. Physiological Response Attending Exposure to Vapors of Methyl Bromide, Methyl Chloride, Ethyl Bromide and Ethyl Chloride, Bull. 185, U. S. Pub. Health Service, 1929.
19. Moyer, J. A., and Fittz, R. U.: Refrigeration, New York, McGraw-Hill Book Company, 1928.
20. Baker (footnotes 10 and 15).
21. Fairbrother, H. C.: St. Louis M. & S. J. 52: 272, 1887.

On entering the refrigeration plant one finds that those departments manipulating sulphur dioxide may contain sulphur dioxide in quantities that immediately lead to coughing, lacrimation and retching. The workers themselves are not so affected, and may appear to have developed a tolerance. But this is due to a chronic bronchitis; and the extra mucous affords some protection to the respiratory passages. High concentrations of this gas are so irrespirable that no normal person would voluntarily remain in such an atmosphere. When pulmonary edema results, absolute rest is more important than any specific treatment.

Methyl Chloride.—The first industrial cases from methyl chloride were reported by Gerbis[13] in 1914. Other cases were reported in 1923 by Roth[14] and in 1926 by Schwartz.[16] In Schwartz's series of ten cases, one death occurred.

In the manufacture of domestic refrigerators, a series of cases took place about 1927, and were reported by Baker.[15] Between 1926 and 1929, Kauffman[10] observed seventy-five cases in one domestic refrigerator plant. These cases arose in the charging and discharging of "boilers." Poisoning may take place in a factory under supervision, or among service men in homes. Apparently, lubricating oils admixed with methyl chloride lead to increased toxicity of the latter. Possibly, under such circumstances, methyl chloride decomposes. Under industrial conditions, work with old machines containing methyl chloride appears to favor poisoning. Acute poisoning should be treated by inhalation of a mixture of oxygen and 5 to 7 per cent carbon dioxide, as in carbon monoxide asphyxia, in order to eliminate the harmful gas through the lungs as rapidly as possible.[22]

The symptoms of poisoning are the same in industrial cases as under any other circumstances of exposure, although industrial cases are more often the result of limited exposure over long periods rather than of heavy exposure over a short period, as in the Chicago group of domestic cases.

By way of treatment for chronic cases, Baker recommends hospitalization of all patients; alkalization; alkalis by rectal drip or intravenously for patients unable to swallow, and oxygen in severer cases, until the odor of ketone has disappeared from the breath. For convulsions and kindred manifestations, large doses of bromides are indicated. Chloral and chloroform are specifically contraindicated.

THE INTRODUCTION OF WARNING AGENTS INTO NONWARNING REFRIGERANTS

At a time closely following the disaster due to methyl chloride leakage in Chicago, some superiority was accorded such refrigerants as sulphur dioxide and ammonia, because of their warning properties. For normal adults these definite warning qualities truly serve as some guaranty of no severe catastrophe, but this does not apply to infants, locked-in children, invalids, the insane, hospital patients, persons under the influence of alcohol, firemen and refrigerator workmen. Since leakage and wear and tear will eventually take place in any refrigerator, it is to be doubted that the use in households of any such agents as sulphur dioxide and ammonia in toxic quantities should ever have full approval.

The addition of these substances to other toxic refrigerants without warning properties is still less warranted. Recent catastrophes prompted this innovation. The addition of 10 per cent sulphur dioxide to methyl chloride, as a warning of the presence of the latter, has been advocated. While this might serve a useful purpose in some instances, it is no guaranty of protection for the classes of persons just mentioned. Assuming that warning agents are available, or may be derived, that are in themselves nontoxic, their use is still open to question. Always, one is confronted with the need for protection of those classes of persons for whom no warning agent will serve as a safeguard in all instances.

From the point of view of this committee, it is more commendable to work toward the attainment of a nonhazardous refrigerant than the attainment of a usable warning agent, when this agent gives protection to only a portion of the public.

REFRIGERATION CODES

As is to be expected after any outstanding catastrophe, various municipalities and states have undertaken to compile codes with reference to divers aspects of refrigeration. These codes show much diversification and, at times, apparent discrimination against particular types of refrigerators. For the best interests of all, it is desirable that a national code be promulgated and accepted in the interests of uniformity. It is noteworthy that in cities which forbid multiple installations, few if any cases of poisoning by refrigerants have occurred.[23]

MORAL OBLIGATIONS

Responsibility for the purveying to the public of substances of unknown or uncertain toxicity is to be placed on the manufacturer. An ample investigation should precede the thrusting of divers contrivances on the public. This responsibility rests to no greater extent on refrigerator manufacturers than on manufacturers of other articles of commerce possessing potentially hazardous features. In practically all calamities in divers industries that involve the public, of which the Chicago methyl chloride experience may be cited as an example, there was available published technical material that should have served to provoke precautionary measures. It is high time that manufacturers ceased obtaining experience as to the hazards of their new products at the expense of human life. It is high time also that the U. S. government provide legal protection against such hazards as it now does in foods and drugs.

SUMMARY OF COMMITTEE'S PRESENT ESTIMATE OF SITUATION

On the basis of all the information in the hands of the committee at the time of the preparation of this paper, a series of brief statements recapitulating the more detailed discussion in the body of this paper has been formulated.

The position of the committee is as follows:

1. Household refrigeration is a factor for good in the promotion of public health and of economic living.

22. Henderson, Yandell: The Dangers of Carbon Monoxide Poisoning and Measures to Lessen These Dangers. Report 1 of the Committee on Poisonous Gases of the American Medical Association, J. A. M. A. 94:179 (Jan. 18) 1930.

23. Wynne, S. W., and Oberwager, John: Refrigerating Systems and Public Health, J. A. M. A. 94:1061 (April 5) 1930.

For this reason no action or attitude is warranted that will tend to hamper the manufacture and use of safe refrigerators.

2. Greater precautions in safeguarding refrigerator installations are called for under domestic conditions (including all institutions where human beings are housed, i. e., hospitals, children's homes) than under ordinary industrial conditions that involve only normal adults.

3. Ammonia, sulphur dioxide and methyl chloride are regarded as definitely toxic in some concentrations. Other common refrigerants are toxic only in the sense of simple asphyxiants.

4. Multiple unit installations in apartment houses and kindred large buildings are regarded as dangerous and highly undesirable so long as it is possible for the entire system's refrigerant charge (or any large portion of it) to be discharged into any one area, such as an apartment. The full quantity that may be discharged into one domicile, home, or apartment, should be less than the lowest toxic concentration.

5. The introduction of warning agents per se (toxic or nontoxic) into refrigerants otherwise without warning properties is regarded as not commendable. This practice does not adequately provide protection for all classes of persons, including infants, locked-in children, the insane, the sick or the aged.

6. The preparation of dissimilar codes, by large numbers of cities and by other political units, is not favored. The meeting of large numbers of requirements in divers cities unduly hampers the manufacturers of refrigerators and increases their cost to the public. Codes of this character, adequate and practical, should attain uniformity through joint efforts coordinated under such auspices as the United States Public Health Service.

7. The manufacturer of refrigerators (and every other manufacturer of a product that may injure the user as a result of faulty manufacturing procedure) has a responsibility to try out and test all substances the harmful properties of which are in any wise uncertain. The use of toxic substances without adequate safeguarding or warning should lead to penalties. *It is no longer to be tolerated that manufacturers procure information as to toxic substances through the deaths and illnesses of consumers.*

8. In connection with the recent deaths from methyl chloride in domestic refrigerator systems, sufficient medical and chemical data were available to have prompted elaborate safeguardings on the part of those persons responsible for refrigerator equipment and installation.

9. This committee favors the prosecution of investigative work to the end that all domestic refrigerator systems may be supplied with practical refrigerants, sufficiently free from toxic properties that life and health may not be jeopardized. Unfinished and unpublished work in the hands of the refrigerator industry promises such a refrigerant.

10. The public is now protected in respect to foods and drugs by federal law and careful governmental supervision. Similar protection for the public is needed in regard to possibly harmful substances outside the field of foods and drugs.

34 West Seventh Street.

DIPHTHERIA MORTALITY IN LARGE CITIES OF THE UNITED STATES IN 1929

SEVENTH ANNUAL REPORT[1]

Data are herewith presented for the same eighty-one cities as appeared in the 1927 and 1928 reports (all having a population of more than a hundred thousand). The diphtheria deaths of each city have been reported to us by the respective health departments.[2] The rates are calculated on the basis of the population figures used in the article on typhoid.[3]

Seven of the twelve New England cities (table 1) had lower diphtheria death rates in 1929 than in 1928. This improvement was especially noteworthy in New Haven, Cambridge, Hartford and Bridgeport. Lynn and Fall River, on the other hand, had an increased diphtheria mortality in 1929, but even this increase did not give them so high a rate as they had in 1927. The five-year averages for 1925-1929 are available for comparison with those for 1920-1924 and show without exception an important reduction in the number of diphtheria deaths, New Haven and Cambridge making a particularly good showing. Hartford is the only city of this group showing a continuous decline in five-year averages since 1890 (table 13). Boston's 1925-1929 average drops to 8.3 from the 20.2 average of the preceding five years. The whole New England group (table 16) shows a gratifying improvement in 1929 (7.30) over 1928 (8.59), although not reaching the low diphtheria mortality of 1926 (6.75). In spite of this general improvement there are significant individual differences. The cities of Lynn, Bridgeport, Fall River and Springfield have in the last five years had much higher rates than New Haven, Cambridge, Hartford and even Boston. It seems probable that an active immunization campaign would bring these cities into

TABLE 1.—*Death Rates of Cities in New England States from Diphtheria (Including Croup) per Hundred Thousand Population*

	1925-1929	1929	1928	1927	1920-1924	1915-1919	1910-1914	1905-1909	1900-1904	1895-1899	1890-1894
New Haven	1.6	1.0	3.2	1.6	7.1	14.2	14.9	22.7	15.6	54.8	74.5
Cambridge	2.9	0.8*	7.1	0.0	8.9	12.9	23.8	25.3	46.7	71.9	58.0
Hartford	4.9	2.8	8.7	4.2	11.9	13.8	25.3	28.1	38.8	47.8	120.9
Boston	8.3	6.3†	7.9	7.6	20.2	26.3	20.0	26.3	53.7	83.9	112.2
Providence	8.4	9.6†	8.7	8.2	15.8	29.3	26.8	30.7	41.2	53.5	55.3
Worcester	8.6	8.5†	6.6	5.6	15.5	14.1	21.3	32.2	16.5	50.3	47.8
Lowell	9.8	12.4	11.5	16.0	16.7	23.5	20.6	31.0	59.3	44.3	30.4
New Bedford	10.1	7.4	9.0	15.6	16.5	17.0	20.9	22.6	25.1	53.6	20.0
Springfield	10.3	15.1	16.0	12.2	15.4	24.9	19.1	31.3	29.6	51.3	68.2
Fall River	10.6	10.3	3.0	14.3	25.5	23.6	24.0	34.4	50.1	43.8	46.9
Bridgeport	10.8	3.2	15.5	14.9	19.6	23.4	23.3	26.8	34.2	63.9	79.3
Lynn	13.0	17.9	6.6	19.1	17.0	17.8	17.2	21.7	38.0	44.0	49.0

* Population estimate furnished by the health department: 127,125.

† A considerable proportion of the total 1929 diphtheria deaths in the following cities seems to have occurred in nonresidents: In Worcester, eleven out of a total of nineteen; in Providence, eleven out of a total of twenty-eight, and in Boston, nineteen out of a total of fifty-one deaths were in nonresidents.

1. The preceding articles were published in THE JOURNAL, Sept. 20, 1924, p. 918; April 25, 1925, p. 1269; April 3, 1926, p. 1005; April 30, 1927, p. 1396; May 19, 1928, p. 1621; May 25, 1929, p. 1759.

2. It should be noted that the figures include all diphtheria deaths that have occurred within the city limits, nonresidents as well as residents. In some instances this undoubtedly gives an exaggerated impression of the amount of diphtheria in a community, but at present statisticians are agreed that "the attempt to eliminate the deaths of nonresidents would often result in an understatement of the true mortality" (Bureau of the Census, Mortality Statistics, 1912, p. 13).

3. Typhoid in the Large Cities of the United States in 1929, J. A. M. A. 94: 1574 (May 17) 1930, footnote 3.

line. There is certainly no valid reason why in the course of years Lynn should have consistently higher diphtheria rates than Boston, or Bridgeport than New Haven.

With one exception (Newark), all the cities in the Middle Atlantic group had a lower average diphtheria death rate in the five-year period 1925-1929 than in 1920-1924 (table 2). The improvement is especially marked in the case of Syracuse, Erie, Reading and Buffalo, although several other cities have made nearly as good records. The low Buffalo average for 1925-1929 contrasts with a high average for the two preceding five-year periods. Four cities in this group have shown a continuous decline in the five-year averages from 1890 through 1929—New York, Philadelphia, Jersey City and Camden (table 13). Camden, however, was nearly at the bottom of the list for 1920-1924 and still has the highest diphtheria death rate in the group for 1925-1929. A systematic antidiphtheria campaign in this city seems to be called for since the improvement between 1920 and 1930 is less than in any other city of the group with the exception of Scranton. Jersey City, which had relatively high rates in 1927 and 1928, reports the low rate of 2.1 in 1929. Utica, Rochester and Syracuse also have low 1929 rates. The remarkable improvement in New York City has continued. In 1929 less than one-tenth as many children died from diphtheria in that city as in 1895-1899. This means that there were only 462 deaths from this cause in New York City in 1929, instead of approximately 5,000, the number that would have occurred had the 1895-1899 rate prevailed. The Middle Atlantic cities as a group, although including the largest population, had a lower diphtheria death rate than either the cities of the East North Central or West South Central states, and almost exactly the same rate as the New England and East South Central cities (table 16).

Five of the seven South Atlantic cities (table 3) had lower rates in 1929 than in 1928. Norfolk, which showed an increase, had the relatively high 1929 rate of 6.5, as compared with 3.3 in 1928 and 1.7 in 1927 and also as compared with the averages for 1920-1924 and 1915-1919 (4.3 and 4.1, respectively). In spite of this, however, its exceedingly low records in 1925, 1926 and 1927 place it at the head of the list of 1925-1929 averages in this group. Baltimore makes a new low record in 1929 with a rate of 3.9 and maintains its continuous decline in diphtheria, which has been a noteworthy epidemiologic feature since 1890 (table 13). Atlanta also makes a fine new low record in 1929 (3.8). This group of cities has the lowest average diphtheria death rate (4.70) in the country with the exception of the 3.35 rate of the Mountain and Pacific cities (table 16).

The East North Central cities had the highest group rate (11.33) in the country for 1929, as was the case also in 1926, 1927 and 1928 (table 16). Only one city in this group (Cincinnati) has shown a continuous decline since 1890 (table 13). Cleveland and Detroit had a diphtheria mortality for 1925-1929 nearly as high as the average for 1920-1924 (table 4), although in 1929 Cleveland made a particularly good record (3.9). Grand Rapids easily carries off the palm in this group for a low diphtheria average in the last quinquennium (2.0). Most of the cities in this group show a better diphtheria rate for 1929 than for 1928, but Detroit is still suffering from the relatively high prevalence of diphtheria which has been manifested especially since 1926, following a low rate in the previous year; its rate in 1929 was the highest in the country, 21.8 (table

TABLE 2.—*Death Rates of Cities in Middle Atlantic States from Diphtheria (Including Croup) per Hundred Thousand Population*

	1925-1929	1929	1928	1927	1920-1924	1915-1919	1910-1914	1905-1909	1900-1904	1895-1899	1890-1894
Syracuse	2.0	2.0	2.0	1.5	22.9	12.9	16.6	17.4	17.7	31.1	55.4
Trenton	4.0‖	7.1	2.9	1.5	7.3	8.8	12.3	15.8	23.6	92.7*	89.7*
Erie	5.8	2.2	0.7	8.4	16.8	15.1	17.7	27.1	42.3	23.1†	
Reading	7.0	6.9	6.1	8.7	21.1	16.9	35.7	29.2	70.1	72.0	94.1
Albany	7.5	9.1	5.0	10.9	12.8	10.4	20.0	31.6	26.9		
Rochester	7.5	1.5	3.6	6.5	16.9	12.7	22.1	32.4	32.3	45.9	96.6
Paterson	8.7	14.4	9.0	9.7	18.5	13.5	16.1	25.5	52.9	111.8	145.4
Buffalo	9.1	12.5	11.3	10.7	24.0	27.3	22.0	18.4	24.8	53.3	60.9
New York	9.8	7.6	10.7	12.0	14.0	21.8	28.0	40.0	58.0	85.8	134.4
Yonkers	10.9	3.2	9.1	19.4	17.0	17.7	25.3				
Philadelphia	11.1	4.2‡	11.1	10.8	16.7	22.7	24.6	34.1	50.0	100.6	119.4
Jersey City	11.2	2.1§	18.8	11.2	18.4	21.0	23.2	32.6	57.9	85.4	108.6
Pittsburgh	11.5	9.8	11.6	17.4	20.1	22.3	29.3	20.4	36.9	32.9	86.4
Scranton	11.7	11.7#	7.6	18.1	12.3	22.1	23.4	....	....	77.8*	48.6*
Elizabeth	13.2	18.7	15.6	10.6	19.2	19.3	14.8	51.7	42.4	60.5	79.3
Newark	13.4	20.0	20.0	13.3	9.7	14.6	23.3	30.1	46.7	79.1	110.4
Utica	13.4¶	0.9	1.0	29.2							
Camden	19.3	11.6	13.3	24.9	20.3	23.2	38.8	48.9	52.6	93.8	191.0

‖ A considerable proportion of the total 1929 diphtheria deaths in Trenton seems to have occurred in nonresidents (six out of a total of ten).
* Diphtheria deaths from Chapin's Municipal Sanitation.
† Lacks data for 1895.
‡ Population estimate furnished by the health department: 2,092,576.
§ Population estimate furnished by the health department: 329,256.
# The figures for deaths from diphtheria in Scranton were sent us by the state registrar, Harrisburg, Pa.
¶ Lacks data for 1925.

TABLE 3.—*Death Rates of Cities in South Atlantic States from Diphtheria (Including Croup) per Hundred Thousand Population*

	1925-1929	1929	1928	1927	1920-1924	1915-1919	1910-1914	1905-1909	1900-1904	1895-1899	1890-1894
Norfolk	2.8	6.5*	3.3	1.7	4.3	4.1	6.7	17.0			
Jacksonville	5.2†	4.2	3.5	7.2							
Washington	6.3	6.0	8.1	4.4	10.5	11.9	6.9	11.2	23.5	50.9	77.9
Richmond	6.5	3.0	6.7	5.7	9.8	5.8	7.0	9.8	24.4	17.6	59.7
Atlanta	7.0	3.8	7.0	8.8	13.3	10.1	12.5	14.2	11.1	10.5	8.8
Baltimore	7.2	3.9	7.6	11.3	11.4	13.5	14.2	16.1	33.0	68.1	70.0
Wilmington	9.4	6.1	6.2	4.8	11.6	15.2	18.0	27.8	50.9	84.9	83.8

* Population estimate furnished by health department: 184,200.
† Lacks data for 1925.

TABLE 4.—*Death Rates of Cities in East North Central States from Diphtheria (Including Croup) per Hundred Thousand Population*

	1925-1929	1929	1928	1927	1920-1924	1915-1919	1910-1914	1905-1909	1900-1904	1895-1899	1890-1894
Grand Rapids	2.0	0.6	0.0	1.9	19.6	13.5	20.0	23.6	17.2	52.4	99.2
Canton	2.5	2.5	1.7	0.9	17.5	15.1*					
Flint	4.5	5.2	3.4	7.0	29.9	25.5	12.7	11.0	16.8	6.9	69.2
Columbus	4.6	0.3	2.0	6.9	8.5	7.6	12.1	10.5	11.6	28.5	56.9
Dayton	4.6	3.2	3.2	6.6	9.4	9.3	22.1	13.3	17.2	27.4	82.9
Akron	4.9	1.7	12.4	5.2	10.4	18.9	27.8	21.8†			
Cincinnati	5.5	5.3	8.7	5.8	10.6	13.2	13.9	17.0	17.3	37.3	103.7
Indianapolis	6.1	4.9	5.2	7.7	11.7	21.4	13.5	13.3	15.9	36.4‡	97.3§
Toledo	6.5	3.7	2.9	8.2	22.4	14.1	25.4	20.4	53.8	34.6	89.3
Milwaukee	8.5	4.5	6.4	10.4	11.4	19.8	27.8	26.4	22.7	51.7	116.2
Youngstown	9.7	12.7¶	16.6	13.6	18.5	11.9	40.5	33.5	28.0	17.6	23.4#
Chicago	12.0	16.0	14.6	14.1	17.5	31.2	37.9	27.0	33.9	69.7	117.3
Cleveland	13.6	3.9	10.3	18.8	14.7	20.0	24.6	20.8	42.6	45.3	95.7
Detroit	20.6	21.8	16.2	20.8	24.3	32.2	33.3	22.6	38.5	62.9	132.9

* Lacks data for 1915.
† Data for 1909 only.
‡ Diphtheria deaths from Chapin's Municipal Sanitation.
§ Lacks data for 1890.
¶ Population estimate furnished by health department: 189,000.
# Data for 1893 and 1894 only.

11), as was also its 1925-1929 average (table 9). The group as a whole seems to be working out of a period of relatively excessive diphtheria prevalence.

Three of the four East South Central cities showed an increase in diphtheria mortality in 1929 as compared with 1928 (table 5). The 1925-1929 average for Nashville is in excess of the averages for the four quinquenniums from 1905 to 1924. The 1925-1929 average for Birmingham is somewhat higher (5.8) than its 1920-1924 average (5.3). The Memphis average shows a comparatively slight decrease over the preceding average (7.2 as against 9.5), but Louisville has made a considerable improvement (1925-1929 average of 4.6, 1920-1924 average of 10.4). Despite the high five-year average for Nashville, that city had in 1929 its lowest diphtheria mortality (4.9) since 1924, when its rate was 1.6. This group as a whole (table 16) should probably make a better showing, since climatic and other conditions are favorable for maintenance of a low rate and the 1895-1899 averages were relatively low as compared with those for the rest of the country.

TABLE 5.—*Death Rates of Cities in East South Central States from Diphtheria (Including Croup) per Hundred Thousand Population*

	1925-1929	1929	1928	1927	1920-1924	1915-1919	1910-1914	1905-1909	1900-1904	1895-1899	1890-1894
Louisville	4.6	5.6	4.8	5.6	10.4	9.5	9.0	....	....	39.0*	49.6†
Birmingham	5.8	9.2	4.0	7.4	5.3	7.2	8.3	6.2	13.4	16.5	26.3
Memphis	7.2	10.4‡	5.8	7.6	9.5	11.2	11.9	13.4	6.9	10.0	28.5
Nashville	11.8	4.9	15.0	12.3	8.0	8.9	7.3	10.3	13.9	30.1	28.4

* Diphtheria deaths from Chapin's Municipal Sanitation.
† Lacks data for 1890; diphtheria deaths from Chapin's Municipal Sanitation.
‡ Population estimates furnished by health department: 192,515.

TABLE 6.—*Death Rates of Cities in West North Central States from Diphtheria (Including Croup) per Hundred Thousand Population*

	1925-1929	1929	1928	1927	1920-1924	1915-1919	1910-1914	1905-1909	1900-1904	1895-1899	1890-1894
Duluth	1.7	0.8	1.7	2.7	6.0	10.2	8.8	38.2	29.1	7.6	49.5
Kansas C'y, Kan.	4.6	4.2	4.2	6.8	9.8	23.1	12.4*				
Kansas C'y, Mo.	4.7	4.5	4.6	2.9	14.4	22.8	15.7*				
Des Moines	4.8	0.0	0.6	4.0	15.1	16.6	15.1	23.8†			
St. Paul	5.2	1.0	1.7	2.0	17.5	20.7	31.4	31.1	27.9	43.3	75.4
Omaha	6.0	4.8	5.8	3.6	22.9	35.8	15.8	24.5	20.5	28.2	82.9
St. Louis	9.9	7.5‡	9.1	8.6	16.1	24.4	23.7	19.4	43.3	62.9	67.7
Minneapolis	11.9	5.6	5.3	6.2	13.4	19.9	28.3	24.4	44.6	34.0	55.0

* Lacks data for 1910 and 1911.
† Data for 1909 only.
‡ Population estimate furnished by the health department: 856,000.

All the cities of the West North Central states showed a decline for 1925-1929 as compared with 1920-1924 (table 6). Considering that the severe climatic conditions that prevail in a number of these cities are generally supposed to be conducive to diphtheria, the showing made by this group is particularly satisfactory. The 1929 rates in such cities as Duluth, St. Paul and Minneapolis are surprisingly low. It is interesting that for three years the rates in Minneapolis have been several times as high as those in the adjacent city of St. Paul and that the five-year average, even, is more than double. Duluth has had what for a northern city is the gratifyingly low five-year average of 1.7, the third lowest rate in the country (table 10). The group as a whole stands practically with the South Atlantic cities in second place among the geographic groups (table 16).

The West South Central cities make perhaps the least satisfactory showing, in view of the relatively favorable climatic conditions (table 7). Dallas and San Antonio are in the group of cities with the highest diphtheria death rates in the country for 1929 (table 11). As the rates in these cities were relatively low twenty years ago (for 1905-1909, San Antonio had an average of 7.6 and Dallas of 8.1), it is somewhat discouraging to find the 1925-1929 averages (San Antonio 10.3, Dallas 10.7) both higher than in the earlier period. Fort Worth appears to have had much more fatal diphtheria in the years 1925-1929 than in any five-year period since 1900. Houston also had a higher diphtheria death rate in 1925-1929 than even in 1890-1894 and 1895-1899. El Paso alone among these cities shows a 1925-1929 average lower than that for 1920-1924 and is the only one that appears to be on the road to permanent improvement as compared with earlier conditions. The fact that diphtheria was not for years as serious a problem in this group of cities as in northern communities seems to have led to a relative neglect of this important infection. In 1929 only the East North Central cities exceeded this group in diphtheria mortality (table 16). Diphtheria, like typhoid, is a preventable disease—a fact that every municipal chamber of commerce ought to know.

TABLE 7.—*Death Rates of Cities in West South Central States from Diphtheria (Including Croup) per Hundred Thousand Population*

	1925-1929	1929	1928	1927	1920-1924	1915-1919	1910-1914	1905-1909	1900-1904	1895-1899	1890-1894
El Paso	6.1	9.0	9.3	1.8	20.0	17.6	29.2				
Houston	7.9	6.0	4.7	7.4	6.4	6.1	7.8	10.5	4.2*	2.4	1.8
New Orleans	8.5	5.4	8.6	15.1	6.5	11.6	19.6	10.2	11.5	17.1	51.3
Fort Worth	9.5	11.8	5.9	15.3	1.7†	2.6‡	2.6	2.8	5.4		
Tulsa	10.0	6.3	9.4	10.0	8.3§						
San Antonio	10.3	15.6	12.4	13.7	7.7	8.7	6.7	7.6	17.1	20.6	4.4
Dallas	10.7	17.8	11.9	8.5	8.3	7.4	6.9	8.1	16.9	16.0	21.8
Oklahoma City	10.9¶	5.6#	15.7	11.4							

* Data for 1900 and 1901 only.
† Data for 1924 only.
‡ Lacks data for 1918 and 1919.
§ Data for 1923 and 1924 only.
¶ Lacks data for 1925 and 1926.
# Population estimate furnished by the health department: 160,000.

TABLE 8.—*Death Rates of Cities in Mountain and Pacific States from Diphtheria (Including Croup) per Hundred Thousand Population*

	1925-1929	1929	1928	1927	1920-1924	1915-1919	1910-1914	1905-1909	1900-1904	1895-1899	1890-1894
Seattle	1.4	0.5	1.0	0.8	6.6	5.5	5.2	12.5	13.4*	27.2†	
San Francisco	4.6	2.8	3.4	3.6	23.0	17.0	9.2	14.4	44.2	21.6	54.8
Los Angeles	5.6	3.2	5.6	7.0	14.4	7.1	7.5	15.3	25.4	35.8	46.0
Portland	6.4	4.3‡	3.0	3.6	11.3	6.0	12.3	12.2	20.2		
San Diego	7.2	4.0	5.9	9.5	12.2	10.5	8.0	5.8	2.4		
Oakland	7.4	4.3§	10.2	10.1	18.8	8.1	10.3	16.1	29.1		
Spokane	7.5	7.3	7.3	0.9	11.3	4.2	7.6	25.8	....	59.5†	18.1
Denver	8.6	4.3	4.4	7.9	23.2	6.7	10.2	20.8	29.6	27.3	130.2
Tacoma	9.0	5.3	0.0	4.7	12.4	7.7¶					
Salt Lake City	10.1	2.8	5.1	14.0	12.5	14.5	15.1	34.2	46.0	14.8	56.7#

* Lacks data for 1900.
† Diphtheria deaths from Chapin's Municipal Sanitation.
‡ Population estimate furnished by the health department: 348,845.
§ Population estimate furnished by the health department: 280,900.
¶ Lacks data for 1915.
# Lacks data for 1890 and 1891.

The epidemic wave of diphtheria that affected the Mountain and Pacific cities during the 1920-1924 period has receded to a low point. Every one of the ten cities

in this group (table 8) had a lower average for 1925-1929 than for 1920-1924, and with four exceptions the 1925-1929 averages were lower than for the preceding low period (1915-1919). Seattle, which for some reason has long had a consistently low diphtheria mortality, had the third lowest rate in the country (0.5) in 1929 (table 12) and the surprisingly low 1925-1929 average of 1.4, the lowest among the eighty-one cities (table 10). San Francisco also reported for this

TABLE 9.—*Ten Highest Diphtheria Averages for 1925-1929* *

Detroit	20.6	Elizabeth	13.2
Camden	19.3	Lynn	13.0
Cleveland	13.6	Chicago	12.0
Newark	13.4	Minneapolis	11.9
Utica	13.4	Nashville	11.8

* Cities that should be on the anxious seat with respect to diphtheria.

TABLE 10.—*Ten Lowest Diphtheria Averages for 1925-1929* *

Seattle	1.4	Canton	2.5
New Haven	1.6	Norfolk	2.8
Duluth	1.7	Cambridge	2.9
Grand Rapids	2.0†	Trenton	4.0
Syracuse	2.0	Flint	4.5

* Honor roll.
† We are informed that the one diphtheria death in Grand Rapids in 1929 was in a nonresident.

TABLE 11.—*Ten Cities with Highest Diphtheria Death Rates for 1929*

Detroit	21.8	Dallas	17.8
Newark	20.0	Chicago	16.0
Camden	19.3	San Antonio	15.6
Elizabeth	18.7	Springfield, Mass.	15.1
Lynn	17.9	Paterson	14.4

period the remarkably low average of 4.6, as compared with 5.6 for Los Angeles and 7.2 for San Diego. Evidently the battle is not always to the climate of the orange grove.

TABLE 12.—*Ten Cities with Lowest Diphtheria Death Rates for 1929*

Des Moines	0.0	Duluth	0.8
Columbus	0.3	Utica	0.9
Seattle	0.5	New Haven	1.0
Grand Rapids	0.6*	St. Paul	1.0
Cambridge	0.8	Rochester	1.5

* We are informed that the one diphtheria death in Grand Rapids was in a nonresident.

TABLE 13.—*Cities Showing a Continuous Decline in Diphtheria Death Rates (Five-Year Averages) from 1890 Through 1929* *

Baltimore	Camden	Cincinnati	Hartford
Jersey City	New York		Philadelphia

* Newark is the only city on the corresponding list in 1924 that is not there in 1929.

The northern geographic divisions (table 16) experienced for the most part lower diphtheria death rates in 1929 than in 1928. The rates in the East North Central cities remained, however, about the same (11.30 in 1929, 11.29 in 1928). The groups of East South Central and West South Central cities both showed an increase in 1929 as compared with the preceding year, the cities of the West South Central area manifesting a rather sharp rise in diphtheria mortality. Few general conclusions, however, can be drawn until census figures for population are available, since the population estimates for 1929 are in some instances undoubtedly wide of the mark. It seems to be plain, however, that

TABLE 14.—*Number of Cities with Various Diphtheria Death Rates*

	No. of Cities	40 and Over	20 and Over	10 and Over	5 and Over	Under 5
1890-1894	61	50	57	58	59	2
1895-1899	63	34	52	50	62	1
1900-1904	65	21	45	61	63	2
1905-1909	69	3	41	63	68	1
1910-1914	75	1	34	59	74	1
1915-1919	77	0	23	58	74	3
1923-1924	78	0	14	58	76	2
1925	79	0	4	29	59	20
1926	80	0	4	22	55	25
1927	81	0	2	31	60	21
1928	81	0	1	21	53	28
1929	81	0	2	16	42	39
1925-1929	81	0	1	22	62	19

the relatively high wave of diphtheria prevalence on the Pacific Coast and in the Mountain states has now receded, this group having the lowest rate of any geographic division in 1929. The steady decrease in diphtheria death rates throughout the country is another fact that can hardly be altered by more accurate population estimates, the actual number of diphtheria deaths reported in 1929 (2,682) being considerably lower than for many years (table 15). Twenty years

TABLE 15.—*Total Diphtheria Death Rate for Seventy-Eight Cities, 1923-1928* *

	Population	Diphtheria Deaths	Diphtheria Death Rate per 100,000
1923	29,970,602†	3,982†	13.25†
1924	30,725,200	3,370	10.98
1925	32,010,310	3,096	9.65
1926	32,485,591	3,055	9.40
1927	33,003,423	3,451	10.43
1928	33,750,384	3,125	9.26
1929	34,650,161	2,682	7.73‡

*Jackonsville, Oklahoma City and Utica are omitted from this summary because data for the full period are not available.
† Lacks data for Fort Worth.
‡ The rate for 81 cities is 7.69 (2,698 deaths).

TABLE 16.—*Total Diphtheria Death per Hundred Thousand Population for Eighty-One Cities According to Geographic Divisions*

	1929 Population	1929 Diphtheria Deaths	1929 Diphtheria Death Rate	1928 Diphtheria Deaths	1928 Diphtheria Death Rate	1927 Diphtheria Death Rate	1926 Diphtheria Death Rate	1925 Diphtheria Death Rate
New England	2,575,282	188	7.30	219	8.59	8.82	6.75	9.25
Middle Atlantic	12,034,265	911	7.57	1,275	10.80	11.75	9.16	11.46
South Atlantic	2,321,300	109	4.70	158	6.91	7.53	6.38	7.46*
East North Central	8,715,100	989	11.36	961	11.29	13.28	12.84	8.39
East South Central	890,915	67	7.44	57	6.46	7.61	6.82	5.03
West North Central	2,636,300	128	4.85	145	5.57	5.59	10.04	12.50
West South Central	1,875,054	172	9.17	163	6.18	11.18	7.77†	7.40†
Mountain and Pacific	4,001,445	134	3.35	175	4.67	5.87	7.20	8.19

* Lacks data for Jacksonville.
† Lacks data for Oklahoma City.

ago it would have seemed almost incredible that the diphtheria death rate would be reduced to between 7 and 8 per hundred thousand for an urban population of approximately thirty-five million.

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SATURDAY, JUNE 7, 1930

THE STUDY OF ANEMIA

Interest in the clinical problems of the anemias has been greatly stimulated of late by a number of coincident circumstances. Foremost undoubtedly has been the demonstration by Minot and Murphy [1] of the therapeutic potency of liver feeding in cases of pernicious anemia. More recently this has been supplemented by the evidence that extracts of stomach tissue have a comparable effect. Comparatively recent, too, are the experimental studies of nutritional anemias, the proofs that they can be overcome by administration of suitable inorganic elements, notably iron salts, and the surprising indications of the supplementary potency of copper (and possibly a few other elements) in minute proportions in the restoration of normal blood conditions. Some of the newer phenomena are so dramatic that the public as well as the medical profession has become aroused by them. Therapeutic measures that are inherently harmless, in contrast to the use of dangerous drugs, tend to find popular application often regardless of indications for them or the fundamental principles of their action. All too often, quackery follows in the wake of stimulated interest in medical novelties.

Even among physicians there seems to be confusion, if not actual ignorance, regarding the manifold states that are characterized by the general symptom anemia. To include all cases of "bloodlessness" in a single category of maladies is as ridiculous as to consider indigestion as a single disease entity. Scientific progress in medicine is characterized first of all by the increasing ability to distinguish causes of symptoms—to make differential diagnoses and relegate each morbid manifestation to its appropriate group. How enormously our understanding of fevers has expanded with the passing decades! Discriminating facts contribute to intelligent prophylaxis as well as to effective treatment. Except for the alliteration of the names, typhoid, typhus and tularemia emerge from the congeries of fever as widely unlike disease entities. The enormous catalogue of anemias has not yet attained such excellence of classification; but never before has effective differentiation been more urgently needed. Such fundamental facts as the response of reticulated erythrocyte formation to different forms of treatment are only beginning to be marshaled.[2]

An interesting investigation of the factors active in the production of some common forms of secondary anemia has been published from the Cornell University Medical College, by Douglas and Tannenbaum.[3] They postulate three mechanisms that may be concerned: (1) hemorrhage; (2) diminished production of blood or impaired delivery of erythrocytes from the hematopoietic tissues into the circulation, and (3) destruction of blood. Some of these are determinable by relatively simple laboratory procedures. It is generally accepted that the reticulocytes are young and immature red blood cells. Hence the reticulated cell count furnishes an index of bone-marrow function. The icteric index is a guide to the destruction of red blood cells or, more accurately, the disintegration of hemoglobin, provided there is no biliary obstruction or injury of the liver. In many cases without hemorrhage or special hemolytic disease a normal reticulocyte count and a normal or low icteric index are found. Such a type of anemia cannot be due to blood destruction. Diminished production of blood may be regarded as causal. It is too early to discuss the variants presented by such methods of clinical examination. The important point is to stress the advent of procedures that should contribute an intelligent attitude in a field in which much confusion still reigns.

1. Minot, G. R., and Murphy, W. P.: Treatment of Pernicious Anemia by a Special Diet, J. A. M. A. **87**: 470 (Aug. 14) 1926; A Diet Rich in Liver in the Treatment of Pernicious Anemia, ibid. **89**: 759 (Sept. 3) 1927.

HOUSEHOLD REFRIGERANTS: REPORT 2 OF THE COMMITTEE ON POISONOUS GASES

As industry advances to make life less arduous and more pleasant, new health hazards arise. The fact has been forcefully emphasized by fatalities and near-fatalities arising from utilization of household mechanical refrigerators. The deaths early last summer in Chicago from methyl chloride, used as a refrigerant in multiple refrigerator systems, were one of the factors that led the House of Delegates in session at Portland, Ore., to authorize the appointment of a Committee on Poisonous Gases. The second report of this committee, drafted by Dr. Carey P. McCord, appears elsewhere in this issue.[4] This report is devoted to the consideration, the relative health and safety factors of refrigerants under varying conditions and summarizes the committee's present estimate of the situation.

2. Yang, C. S., and Keefer, C. S.: The Response of the Reticulocytes in Secondary Anemias Following Various Forms of Treatment, Arch. Int. Med. **45**: 456 (March) 1930.

3. Douglas, A. H., and Tannenbaum, Herman: The Mechanism of Secondary Anemia, Arch. Int. Med. **45**: 248 (Feb.) 1930.

4. Household Mechanical Refrigeration, drafted for the committee by Carey P. McCord, this issue, p. 1832. The first report was on "The Dangers of Carbon Monoxide Poisoning and Measures to Lessen These Dangers," drafted for the committee by Yandell Henderson, J. A. M. A. **94**: 179 (Jan. 18) 1930.

Of a possible twenty-five substances that might be used as refrigerating mediums, three are in widespread use: ammonia, sulphur dioxide and methyl chloride. All three are regarded as definitely toxic in some concentrations. The irrespirable properties of ammonia and sulphur dioxide, which serve as warning agents to those whose senses are not impaired, probably explain why fatalities from these substances have been minimal as far as their domestic use is concerned. The finger of accusation has been pointed at methyl chloride as the causative factor in the more recent series of domestic refrigerant deaths. In this connection, two factors must be considered. The deaths occurred in apartments where more than one refrigerator was being supplied from a central plant; that is, the multiple system. This permits a larger quantity of the gas to escape when a leak occurs than would have been the case in a single unit. The other factor is that methyl chloride has no warning properties. As McCord points out, in terms of parts per million, methyl chloride is far less toxic as a producer of immediate harm than either ammonia or sulphur dioxide. Unlike these substances, the action of methyl chloride may be two phased. Its initial action is that of a narcotic, akin to the chloroform type of anesthetic. Its secondary action is probably due to decomposition products in which the prime harmful factor is methyl alcohol or some decomposition substances of methyl alcohol.

It is the opinion of the committee, after the brief study of the health and safety factors of commonly used refrigerants in household and industrial systems, that none closely approach the ideal refrigerant, and that under fortuitous circumstances those more commonly employed may prove to be definitely toxic. The committee doubts that the use of sulphur dioxide or ammonia themselves in toxic quantities should ever have full approval. It also disapproves the use of warning agents added to such substances as methyl chloride, as warning agents are not a guaranty of protection to infants, locked in children, the mentally disordered, hospital patients, persons under the influence of alcohol, firemen and refrigerator workers. From the point of view of the committee, it is more commendable to work toward the attainment of a nonhazardous refrigerant than the attainment of a usable warning agent, when this agent protects only a portion of the public.

It is interesting to note that just at the time the committee issued its report there was announced the preparation of a new refrigerant—dichloro-difluoro methane ($C Cl_2 F_2$). The preparation appears to have suitable physical properties for use as a refrigerant. A recent report by the Bureau of Mines [5] on the toxicity of the preparation indicates that, so far as the results of animal experimentation serve as a measure of hazards to persons, the possibilities of hazards to health resulting from exposure to dichloro-difluoro methane when used as a refrigerant are relatively remote. The committee wisely does not venture an opinion as to the merits of the new refrigerant, pending further developments.

5. Sayers, R. R.; Yant, W. P.; Chornyak, John; and Shoaf, H. W.: Toxicity of Dichloro-Difluoro Methane: A New Refrigerant, Report of Investigations, Department of Commerce, Bureau of Mines, R. I. 3013, May, 1930.

STUDY OF THE CAUSE OF INFLUENZA

Numerous bacteriologic studies made during the pandemic of influenza in 1918 centered around three organisms as the possible cause of the disease: (1) the influenza bacillus, (2) *Bacterium pneumosintes* and (3) a specific streptococcus. In a study just published of organisms isolated during the epidemic of 1928, Traut and Herrold [1] were unable to identify *Bacterium pneumosintes* in any of their cultures and identified the influenza bacillus in only one. They believe, however, that definite observations point to a specific streptococcus as the cause of influenza. During the pandemic of 1918, Mathers isolated a green-producing streptococcus, which, on blood agar plates, grew as large, flat, moist colonies and was capsulated and lanceolate. Tunnicliff [2] at that time demonstrated the development of specific opsonins for this organism during the course of the disease. This streptococcus was isolated again in the recent influenza epidemic, and the Chicago investigators produced further evidence which seems to show a relationship between this organism and the cause of influenza. Their cultures, likewise, showed large moist colonies on blood agar plates. The streptococcus was lanceolate and it grew in pairs and short chains. The chief difference in fermentation tests made with this organism and those reported by Tunnicliff in 1918 was the almost complete absence of salicin fermentation. This might be accounted for by a difference in the length of time the organism was grown on artificial mediums in the two sets of experiments. One strain (9 M) obtained from patients in the recent epidemic, when allowed to flow slowly into the nares of rabbits, regularly produced fatal pneumonia. Nonlethal doses of this streptococcus or its filtrates, when injected into mice, protected them wholly or partly in two of three attempts.

Immunization was attempted in fifteen people living in close contact with patients acutely ill with influenza. They were given five injections each of washings from plates of this organism, which had been killed with phenol and heat. Fourteen of these contacts did not develop influenza. One, who was caring for her son who had influenza, developed only a mild acute rhinitis. When several patients having influenza received injections with the plate washings, it seemed to shorten the course of the disease and to lessen the symptoms when used early. The real value, however, of that procedure

1. Traut, E. F., and Herrold, R. D.: The Influenza Epidemic of 1928: A Study of Its Bacteriology, Arch. Int. Med. **45**: 412 (March) 1930.
2. Tunnicliff, Ruth: Phagocytic Experiments in Influenza, J. A. M. A. **71**: 1733 (Nov. 23) 1918.

cannot be estimated in a small series of patients. The green-producing streptococcus produced a toxin with which skin tests were made that suggested a means of determining those people who are susceptible to influenza.

The work done in 1918 on this organism and the study of 1928 are interesting. Mathers' coccus, Traut and Herrold believe, should be tentatively considered the specific cause of influenza until proof is produced to the contrary. Certainly the evidence in support of this contention is as good as or better than that offered for any other. Indeed, the work of Falk and of his colleagues, when examined critically, tends to the same point of view.

MINERAL METABOLISM DURING THE REPRODUCTIVE CYCLE

Reproduction represents, on the part of the mother, a considerable sacrifice not only of activity but also of body substance. From the moment of conception the fetus is essentially a parasite, depending on the maternal organism both for its food and oxygen and for the means of disposing of waste products of its metabolism. To these must be added the trying details of parturition, the removal of the fetus and its adnexa, structures actually produced by the mother, together with varying quantities of blood. However, Slemons [1] has pointed out that a comparison of the weight of the material lost during the birth process with the increase in body weight of the mother in the course of the period of gestation will demonstrate that the net result is a gain on the part of the maternal organism. Gestation is, nevertheless, only one part of the complete reproductive cycle in mammals, and recent studies have emphasized again the striking differences between the physiologic chemistry of pregnancy and that of lactation.

The rapid growth of the fetus in utero would lead one to expect a retention of materials from which new tissue is formed. In a study of nine women in various stages of pregnancy, Coons and Blunt [2] have shown again that there is a positive nitrogen balance, the magnitude of the quantities retained depending largely on the amount of protein in the diet. Furthermore, these investigators have demonstrated that there is a retention of calcium and phosphorus during pregnancy with a marked tendency to rise toward the end of the period. Essentially the same phenomenon was observed by Macy and her collaborators [3] in a study of three women. Twenty-seven pregnancies in rats were observed by Goss and Schmidt,[4] and again in this species the storage of calcium and phosphorus was noted; indeed, the amounts retained were in excess of those contained in the young at birth. It appears, therefore, that nitrogen and the bone-building salts are retained in the maternal organism during the period of fetal life not only for the construction of new tissue but probably also for possible later emergencies, such as pregnancy.

Milk production represents a severe drain on the animal body not only from the point of view of the physiologic processes involved in lactation but also as concerns the supply of raw materials. Milk is unique in nutritive value partly because of the large quantities of calcium and phosphorus it contains, and the problem both in pediatrics and in animal husbandry is to keep from overstepping the ability of the lactating female to produce milk without a severe reduction of the reservoirs of these mineral elements in the body. It was pointed out early in the present decade [5] that cows producing large amounts of milk under ordinary conditions of feeding practice lost more calcium in milk and excreta than they ingested in the ration. Not until late in the period of lactation is there a positive calcium balance, which then continues until the next pregnancy. The goat behaves in like manner. Essentially the same observations have recently been made under controlled dietary conditions by Hunscher [6] on three women who showed an unusually copious milk flow, and by Goss and Schmidt in lactating rats. The latter investigators point out that "during a heavy lactation period the rat may lose 20 per cent of her total supply of calcium and phosphorus," and in women the loss may be even greater.

It has been demonstrated that most of the calcium is lost in the feces, and various dietary adjustments have been made to favor the utilization of this element from the ingested food. From the available evidence it appears that the various species thus far studied behave somewhat differently in response to such changes. The cow seems to be particularly resistant, showing little if any response to hay cured under various conditions, to artificial ultraviolet rays or to cod liver oil treatments which, on the basis of current experience, might be expected to favor calcium utilization. On the other hand, the goat shows some effect in calcium retention when treated with ultraviolet rays or when given cod liver oil. Macy [7] has shown that cod liver oil and dried yeast exerted a somewhat favorable influence on the calcium balance of three women during heavy lactation, the improvement arising primarily from a reduction of the loss in the feces.

Comparatively little has yet been done to bring about marked improvement in the calcium balance during vigorous lactation. During this period the organism withdraws calcium and phosphorus from its mineral

1. Slemons, J. M.: The Nutrition of the Fetus, New Haven, 1919.
2. Coons, C. M., and Blunt, Katharine: J. Biol. Chem. **86**: 1 (March) 1930.
3. Macy, Icie G.; Hunscher, Helen A.; Nims, Betty; and McCosh, Sylvia S.: J. Biol. Chem. **86**: 17 (March) 1930.
4. Goss, Harold; and Schmidt, C. L. A.: J. Biol. Chem. **86**: 417 (March) 1930.
5. Forbes, E. B.; Schulz, J. A.; Hunt, C. H.; Winter, A. R., and Remler, R. F.: J. Biol. Chem. **52**: 281 (May) 1922. Hart, E. B.; Steenbock, Harry; Hoppert, C. A., and Bethke, R. M.: Ibid. **54**: 75 (Sept.) 1922. Miller, H. G.; Yates, W. W.; Jones, R. C., and Brandt, P. M.: Am. J. Physiol. **72**: 647 (May) 1925.
6. Hunscher, Helen A.: J. Biol. Chem. **86**: 37 (March) 1930.
7. Macy, Icie G.; Hunscher, Helen A.; McCosh, Sylvia S., and Nims, Betty: J. Biol. Chem. **86**: 59 (March) 1930.

reserves—largely the bones—rather than improving the absorption of these elements from the intestine in spite of the devices used to favor increased utilization. There are, then, at least two periods during which particular care should be used to promote the storage of inorganic salts, during late childhood and early maturity, and between pregnancies when the mammary glands are quiescent.

OCULAR ANAPHYLAXIS

Numerous ophthalmologists have assumed that certain types of conjunctivitis and keratitis are due to a strictly local protein hypersensitiveness, or true "ocular anaphylaxis." Clinical proof of this is difficult. Lemoine,[1] for example, in a recent review of published evidence, stated his personal conviction that few cases of so-called ocular allergy are true anaphylactic phenomena. He pictures them as pseudo-anaphylactic syndromes conveniently classed under some such noncommittal term as "disturbed endocrine balance." It is, of course, admitted by laboratory immunologists that specific orbital reactions can be induced in hypersensitive animals by local application of specific antigens, but proof is still lacking that such reactions may result from a purely local hypersensitiveness unassociated with constitutional allergy. Schoenberg,[2] and Brown and Dummer,[3] for example, were not able to elicit allergic reactions in the eyes of rabbits, presumably locally hypersensitive, even by the intravenous injection of massive doses of specific proteins.

Convincing evidence of the existence of a true local protein hypersensitiveness, however, is currently reported by David and Beatrice C. Seegal[4] of the Presbyterian Hospital, New York, whose results seem to have been obtained by slight modifications of previous technics. The essential feature of their technic is the adoption of methods that will keep the sensitizing dose of the specific protein in juxtaposition with local tissues for a relatively long period. Foreign erythrocytes and egg white are well suited for such sensitizations, each being retained for several days in the anterior chamber of the rabbit eye. By the sixth day after such injection, absorption is complete and the injected eye is apparently restored to normal. After the usual incubation period for acquired sensitization, intravenous injection of the specific antigen does not induce demonstrable systemic allergy. By the fifth hour after such injection, however, the sensitized eye has become markedly swollen and hyperemic, usually accompanied by profuse lacrimation. This apparently strictly local allergic hyperemia usually lasts about twenty-four hours. The same ocular reaction can be elicited by introducing the specific antigen through the gastro-intestinal tract (stomach tube).

The most suggestive result obtained by the Seegals, however, is their attempted specific desensitization of hypersensitive orbital tissues. They report that repeated daily intravenous injection with the specific antigen is accompanied by a gradual reduction in the severity of the resulting ocular symptoms, with eventual cessation of all local allergic response. This, however, is apparently not due to specific desensitization of the orbital tissues but presumably results from the development of a transient specific portal defense or superimposed humoral immunity. Ocular hypersensitiveness returns nearly quantitatively within a few months after cessation of the daily "desensitizing" dose. If this conclusion is applicable to other hypersensitive tissues, permanent desensitization of local allergic tissues is apparently impossible by the routine method of antiallergic therapy. Study of nonspecific therapeutic methods of local desensitization have not yet been attempted by them.

1. Lemoine, A. N.: Ocular Anaphylaxis, Arch. Ophth. **1**: 706 (June) 1929.
2. Schoenberg, M. J.: New York State J. Med. **14**: 493, 1914.
3. Brown, A. L., and Dummer, Clyde: The Experimental Production of Iritis, Arch. Ophth. **2**: 573 (Nov.) 1929.
4. Seegal, David; and Seegal, Beatrice C.: Proc. Soc. Exper. Biol. & Med. **27**: 390, 393 (Feb.) 1930.

Current Comment

ON CANCER CURES

Elsewhere in this issue (page 1864) appears a discussion of cancer cures by the editor of the *Annals of Internal Medicine*. This exceedingly logical and scientific presentation should be read by every physician, and particularly by those whose enthusiasms are so easily swayed by each new suggestion in this field. Before the light cast on the question by the historical perspective many a cancer theory dies aborning, and many a method of treatment is revealed as an already established failure. Infectious theories and cures based on them, chemical methods based on destruction of the cancer cell by caustic substances, endocrine theories and extracts used in treatment, cancer-lytic materials, Blair Bell's method and the Coffey-Humber technic—all wither and pass before the devastating blast of this succinct criticism. The hope offered for the present is prevention of irritation, early diagnosis and still more complete surgical removal. The pathologist is pessimistic. Even x-rays and radium are proving disappointing. Indeed, the writer sums up with the doubt that a specific therapeutic agent will ever be discovered and with a call for the prevention of exploitation of cancer sufferers by new methods of treatment by the development of a strong ethical sense. The pessimism is perhaps unwarranted. The only answer to it that merits any consideration is not argument but better organized and more definite research. Some system must be established whereby every method of treatment developed under sound auspices may be promptly submitted to trial under controlled conditions by those thoroughly familiar with the natural history of cancer and fully informed concerning the exact nature of the method. Insistence on secrecy concerning methods of preparation should invalidate scientific experimentation with any new technic.

Association News

ANNUAL CONGRESS ON MEDICAL EDUCATION, MEDICAL LICENSURE AND HOSPITALS

Twenty-Sixth Annual Meeting, held in Chicago, Feb. 17, 18 and 19, 1930

(Concluded from page 1767)

COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

FEBRUARY 18—MORNING

TRAINING OF TECHNICIANS

The Training of Laboratory Technicians

DR. PHILIP HILLKOWITZ, Denver: The American Society of Clinical Pathologists has instituted a board of registry of technicians and undertaken the task of issuing certificates to properly qualified technicians. It is now making a survey of schools for technicians and will issue licenses to those who meet the requirements of the board.

A rough estimate of the technicians required in the hospitals of the United States on the basis of their bed capacity gives the number as 15,000. This does not take into account the help in the private laboratories, clinics and offices of practitioners, which is difficult to estimate. It would be desirable to have schools of instruction for laboratory technicians located at a number of easily accessible centers of population. These should be conducted under the guidance of medical and educational bodies and should have ample hospital affiliations for practical training. The problem has reached a stage where it may well occupy the attention of special committees to be appointed by national medical societies, hospital organizations and educational bodies.

Proposed Training for Clinical Laboratory Technicians

DR. W. D. STOVALL, Madison, Wis.: We have organized at the Wisconsin General Hospital and the University Hospital courses of training which are applicable to two types of technicians, university graduates and high school graduates. The course for the former is largely a practice course in which the technician may become thoroughly familiar with the routine application of those sciences of which she has previously secured an elementary understanding. This work is all apprenticeship work and there are no lectures, the student spending the full day in the hospital laboratories. We have tried to add to this work instruction in the x-ray and physical therapy laboratories, but the time is too short for a satisfactory result. Those who want such instruction can enter a special course after completing the course in clinical laboratory diagnosis. We make no attempt to teach the technic of the Wassermann reaction. In most states this work is done by state and municipal laboratories. It has been my experience that if more is attempted than has been outlined for the six months, the result is bad. Special technic can always be learned in an additional period of training. We believe that these technicians at the completion of the course are able to render valuable assistance to physicians and hospitals which do not have the advantages of a consulting clinical pathologist.

The other group of students are entered for a full year, a twelve months' course. They must be high school graduates, must submit a record of their high school work and must present themselves for a personal interview. This group spends half of the time in the hospital laboratories actually working with the technicians regularly employed and the other half in formal instruction, lectures and laboratory periods. The lectures are given by a member of the staff of the department of clinical pathology and a full-time instructor conducts the laboratory periods. These students after completing the course are excellent assistants in laboratories where they can be directed. After several years' experience in large laboratories under good direction, some of them will gain from experience what they have lacked in preliminary education and become excellent independent workers. Under this or some similar scheme I believe it is possible for large hospitals in medical centers and university hospitals to turn out yearly a number of technicians who can be useful in advancing medical practice in smaller hospitals and private offices.

Training of the Lay Technician: Importance to Physicians

DR. WALTER E. KING, Detroit: Laboratory diagnosis is rapidly becoming more and more important. While it may be questioned whether the physician is leaning so heavily on laboratory aid that there is a tendency to shift the responsibility of accurate diagnoses from the clinical to the laboratory observations, it is probable that the physician of twenty years hence will depend on the laboratory even more than at present. In all cases the directors of hospital and clinical laboratories should be graduates with adequate training in clinical medicine. Beyond this it is impossible to equip the personnel of such laboratories with medically trained technicians. It is necessary, therefore, that the training of lay technicians should be standardized and such technicians should be classified according to their training. The need for properly standardized courses of training is well illustrated by the wide variation in the nature of the courses being given in various laboratories. The plan adopted by the American Society of Clinical Pathologists specifying the minimum of work for students and a classification of technicians will lead to much better service for the physician and for the patient. Didactic teaching as well as laboratory practice is essential for the successful training of student technicians. This training should be carried out along prescribed courses of study. Those best fitted to conduct the successful training of lay technicians are the medical schools, closely affiliated with colleges of science, literature and arts.

MEDICAL BROADCAST FOR THE WEEK

American Medical Association Health Talks

The American Medical Association broadcasts at 10 o'clock, daylight saving time, Monday, Thursday and Saturday; at 10:15 on Tuesday, and at 9:45 on Wednesday and Friday, over Station WBBM (770 kilocycles, or 389.4 meters).

The program for the week of June 9-14 is as follows:

June 9. Tooth Troubles.
June 10. When Children are Bad.
June 11. Eyestrain and What to Do About It.
June 12. Cosmetic Surgery of the Nose.
June 13. A Balanced Ration.
June 14. Crawford Long—Preeminent Pioneer.

Five Minute Health Talks may be heard over the Columbia Broadcasting System daily from 1 to 1:05, daylight saving time. The program for the week is as follows:

June 9. Rules of the Health Game.
June 10. Keeping Cool in Hot Weather.
June 11. Health for the Baby Camper.
June 12. Can You Breathe Through Your Nose?
June 13. The Lonely Leper.
June 14. Stand Tall.

A Landmark in the History of Science.—No sooner was Vesalius settled at Padua than he applied himself with unparalleled diligence to lecturing and research. Students crowded to hear him. To aid them he issued, in 1538, a short guide to anatomy and physiology. During the next four years Vesalius had ampler opportunities to dissect than he had yet encountered. He devoted a fiery energy to the preparation of his great work. The Fabric of the Human Body was printed in 1543, a magnificent and beautifully illustrated volume. It is a landmark in the history of science, and a wonderfully full record of a prodigious number of accurately recorded discoveries and investigations made by a single observer. The masterpiece of Vesalius is not only the foundation of modern medicine as a science but the first great positive achievement of science itself in modern times. As such it ranks with another work that appeared in the same year, the treatise of Nicholas Copernicus, On the Revolutions of the Celestial Spheres.—Singer, Charles: A Short History of Medicine, Oxford, 1928, p. 100.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CALIFORNIA

Summer Study for Practitioners. — The University of California Medical School will offer a series of eighteen refresher courses for physicians, from June 2 to July 21. The first course will be a review of recent advances in the fundamental sciences and in clinical medicine, surgery and dentistry and will occupy the period June 2-7. The remaining seventeen courses will deal with especial branches of medicine and surgery and will be given by a staff of fifty-four faculty men. Applications for enrolment will be accepted by the dean in order of receipt. A nominal fee will be charged.

GEORGIA

State Medical Election.—At the annual meeting of the Medical Association of Georgia, May 16, Dr. George Y. Moore, Cuthbert, was installed as president; Dr. Arthur G. Fort, Atlanta, was made president-elect, and Dr. Allen H. Bunce, Atlanta, was reelected secretary. The next annual session will be held at Atlanta, May 12-15.

Society News.—Dr. Thomas I. Willingham addressed the Fulton County Medical Society, Atlanta, May 15, on "Early Diagnosis of Tuberculosis in Children, with Special Emphasis on the Intradermal Tuberculin Test."——A copy of the first edition of De Corporis Humani Fabrica by Vesalius, 1543, has been secured for the A. W. Calhoun Medical Library of Emory University by friends of the library.

ILLINOIS

State Medical Election.—At the annual meeting of the Illinois State Medical Society, May 20-22, at Joliet, Dr. William D. Chapman, Silvis, was installed as president, and Dr. Roy R. Ferguson, Chicago, made president-elect; Drs. Bert G. Wilcox, Joliet, and Otto C. Huber, Chicago, vice presidents; A. J. Markley, Belvidere, treasurer, and Harold M. Camp, Monmouth, secretary. The next annual meeting will be at East St. Louis.

Chicago

Homecoming of Rush Alumni.—During the commencement program of Chicago University, the Rush Alumni Association will hold its annual meeting, Tuesday, June 10, at the Congress Hotel. Special clinics have been arranged for Monday and Tuesday. Among others who will conduct clinics are Drs. Ralph C. Brown, Clayton J. Lundy and James B. Herrick, George E. Shambaugh, Oliver S. Ormsby, James C. Gill, Arthur Dean Bevan, Herman L. Kretschmer, Hillier L. Baker, Noble Sproat Heaney, Aaron E. Kanter, Edward D. Allen and Carl P. Bauer.

INDIANA

Society News.—The forty-third semiannual meeting of the Eleventh Indiana Councilor District Medical Association was addressed, May 15, by Drs. Alfred S. Giordano, South Bend, on "Epidemic Meningococcic Meningitis"; Stanley M. Casey, Huntington, "Treatment of Eclampsia," and James M. Pierce, Ann Arbor. —— The Ninth District Medical Society was addressed at Noblesville, May 15, by Drs. John A. MacDonald on "Practical Points in the Diagnosis and Management of Abdominal Disorders"; Clarence R. Strickland, Indianapolis, "The Kidney in Clinical Medicine," and Henry R. Alburger, "The General Practitioner and the Laboratory"; Dr. Walter C. Alvarez, Rochester, Minn., also addressed the society.—— The Fourth District Medical Society was addressed, May 14, at North Vernon, among others, by O. G. Salb, Seymour, on "Undulant Fever with Laboratory Demonstration," and Dr. Alpha G. W. Childs, Madison, of the Physicians' Credit Association, on "Better Business Methods."——The Indianapolis Medical Society was addressed, May 27, by Drs. Charles E. Ferguson and Gustavus B. Jackson on "Obstetric Problems and Progress."

IOWA

Society News.—The Lucas County Medical Society was addressed in Chariton, May 7, by Drs. Mark L. Underwood on "Care of Ex-Service Men and Women"; Ward W. Hedlund, "History of Mental Diseases," and Charles M. Schiek, Knoxville, "Diagnosis of Various Types of Psychosis."

Personal.—Dr. Florence D. Johnston, Cedar Rapids, was elected president of the Iowa Women's Medical Association at its annual meeting at Marshalltown, May 13.——Dr. Eugene A. Crouse, Grundy Center, recently completed sixty years in the practice of medicine, fifty-eight of which have been spent in Grundy Center.

State Medical Election.—The officers of the Iowa State Medical Society, elected for the ensuing year at its annual meeting, May 16, are Drs. William A. Rohlf, Waverly, president; Channing G. Smith, Granger, president-elect, and Robert L. Parker, Des Moines, secretary. The next annual session will be held at Des Moines, May 13-16.

KANSAS

Society News. — Dr. Horace C. Embry, Great Bend, addressed the Rush-Ness County Medical Society at LaCrosse, April 7, on "Intestinal Stasis and Its Relation to Arthritis."——The Bourbon County Medical Society was addressed by Dr. Ray M. Balyeat, Oklahoma City, April 29, on "Allergy."——A motion picture on "Relation of the Absorbable Suture to Wound Healing" was shown before a recent meeting of the Dickinson County Medical Society at Herington.——Dr. Samuel T. Millard, Topeka, addressed the Clay County Medical Society, April 16, in Clifton on "Precancerous Skin Lesions."

KENTUCKY

Personal.—Dr. Samuel E. Hainline, Owensboro, director of the Daviess County board of health for two years, has tendered his resignation effective when his successor is appointed. Dr. Hainline will enter private practice in Owensboro.

Society News.—The Jefferson County Medical Society presented a symposium on recent developments in the treatment of renal infections, May 19; among the speakers were Drs. Henry J. Farbach, Louisville, James R. Stites, Claude G. Hoffman and Owsley Grant; Dr. Milton B. Cohen, Cleveland, addressed the society, May 5, on "Hay-Fever and Allergic Conditions."——The Tri-County Medical Society was addressed at Mayfield, April 29, by Drs. Hugh E. Prather, Hickman, on "Duties of All Time Health Officer"; David L. Jones, Fulton, "Puerperal Eclampsia," and Earl C. Walter, Mayfield, "Cancers of the Breast."

LOUISIANA

University News.—New Orleans physicians and graduate students of medicine at Tulane University will compose an expedition into Panama this summer for a three months' study of parasites in wild monkeys in relation to parasites in man, under the direction of Dr. Ernest Carroll Faust, professor of parasitology at Tulane. The Gorgas Memorial Institute in Panama is sponsoring the investigation.

MARYLAND

Hospital News.—Mrs. Thomas H. Bowles, Baltimore, has given $230,000 to the Children's Hospital School for the erection of an addition; the new unit will be built as a memorial to Mr. Bowles, who died in 1923, and will be larger than any of the three existing units.

Society News.—A meeting of the West Baltimore Medical Association was held, May 21, to discuss the encroachment of public health work on the private practice of physicians. Among the speakers were Drs. Joseph Colt Bloodgood; Robert H. Riley, director, state department of health; C. Hampson Jones, commissioner of health of Baltimore; Henry M. Fitzhugh, Westminster, and Josiah S. Bowen, Mount Washington, and Frederic V. Beitler.

Personal.—Cordia C. Bunch, Ph.D., associate in research otology at Johns Hopkins Medical School, Baltimore, was recently appointed professor and head of applied physics of otology in Washington University Medical School, effective July 1.——The foyer of the Municipal Building of Baltimore has been selected for the erection of a memorial tablet to Dr. William Royal Stokes, who was chief of the bureau of bacteriology of the city health department for more than thirty years and who died, Feb. 10, 1930, from psittacosis contracted while dissecting infected parrots in his laboratory. Hans Schular has been chosen as the sculptor of the tablet, which will be a bronze bas relief.

MASSACHUSETTS

Society News. — The Harvard Medical Society was addressed, April 22, by Drs. William Raab on "Endocrine and Nervous Factors in Fat Metabolism" and Louise C. Eisenhardt, "Supravital Tissue Preparations for Immediate Diagnosis of Intracranial Tumors"; the society was addressed, May 13, by Drs. Richard W. Farnsworth and Edward B. Castle on "Senile Hyperostosis of the Skull" and "Subdeltoid

Bursitis," respectively.——Dr. Frederick W. O'Brien, Boston, addressed the Massachusetts Society of Examining Physicians, May 14, on "Compression Fractures Versus Kummel's Disease," and Glenn Alfred Shock, Ph.D., Norton, Mass., "Art of Mobile Color."——In furthering the interest of the fund for the New England Medical Center, poster boards in 350 places have been donated by John Donnelly and Sons to carry a display pointing out that there are 448 towns in New England which lack family physicians.——The Essex North District Medical Society was addressed, May 14, among others, by Drs. Zabdiel B. Adams, Boston, on "Orthopedic Surgery and Blood-Borne Infections," and Clarence H. Birdsall, Haverhill, "Arch Culprits—the Tonsils and Accessory Sinuses."

MINNESOTA

Masseur Sentenced for Illegal Operation.—Harold Martin, Minneapolis, 59 years of age, masseur, was convicted, May 16, of manslaughter in the first degree following the death of a young woman from an abortion. The following day Judge Dickinson sentenced Martin to a term of from ten to forty years at hard labor in the state prison at Stillwater; his sentence was doubled because of his prior conviction in 1914 on a charge of murder in the second degree. Martin served seven years of the previous sentence and was released from prison. His license to practice massage was revoked May 20. He claimed to have been born in Liverpool, England, and to have been a physician and surgeon in that country. However, he never was licensed in this state as a physician and surgeon but in 1927 secured a masseur's license.

MISSOURI

Hospital News.—The cornerstone of the McMillan Hospital and Oscar Johnson Institute, the fourteen story, $4,000,000 structure being erected at Kingshighway and Euclid Avenue, St. Louis, was laid, May 14.——Ground was broken for the projected $200,000 Mothers' and Babies' Home at Ferguson, May 11; the institution is nonsectarian and is one of the few in America which allows destitute mothers to remain with their children.

NEBRASKA

Personal.—A banquet was held in honor of Dr. Daniel R. Rogers, Ragan, by the Harlan County Medical Society at Alma, May 1; forty-six of his fifty years in the practice of medicine have been in Harlan County. Dr. Karl S. J. Hohlen, Lincoln, president of the state medical association, gave an address.

Society News.—Dr. Charles W. M. Poynter, Omaha, addressed the Madison Five Counties Medical Society at Norfolk, April 29, on "Trend of Opinion on Peritonitis."——The Buffalo County Medical Society was addressed, recently, at Kearney by Drs. Joseph B. McPherson, Hastings, on "Complications and Dangers Following Tonsillectomies"; Eli Arthur Watson, Grand Island, "Surgery of the Prostate with Case Reports," and Lee W. Rork, Hastings, "Differential Pathology of the Right Abdomen from X-Ray Standpoint."——The Eighth Councilor District Medical Society was addressed, May 1, at O'Neill, by Dr. John P. Gilligan, Jr., Nebraska City, and David W. Sumner, D.D.S., Valentine, among others, on "Acute Appendicitis in Children" and "Cooperation Between the M.D. and Dentist," respectively.

NEW HAMPSHIRE

State Medical Election.—Dr. Osmon H. Hubbard, Keene, was elected president of the New Hampshire Medical Society at its annual meeting, May 14, and Dr. Dennis E. Sullivan, Concord, secretary, reelected. The next annual meeting will be held at Manchester in May.

NEW JERSEY

Society News.—The Middlesex County Medical Society was addressed, April 16, among others, by Dr. Aaron E. Parsonnet, Newark, on "Coronary Thrombosis."——Dr. Walter Timme, New York, addressed the Morris County Medical Society at Greystone Park, April 16, on "Behavior as Influenced by Endocrine Disturbances."——Dr. Hyman I. Goldstein addressed the Camden County Medical Society at Camden, May 13, on "Recent Advances in Diagnosis and Therapy."

NEW YORK

A Cardiac Roundtable.—A special feature of the sessions to be conducted during the summer at the Physicians Hospital of Plattsburg, will be a cardiac roundtable, August 22-23. The final paper, constituting the Beaumont lecture, will be given by Dr. Carl J. Wiggers of Western Reserve University Medical School, Cleveland, on "Physiologic Meaning of Common Clinical Signs and Symptoms in Cardiovascular Disease." Other papers will be given by Drs. William E. Robertson of Temple University School of Medicine, Philadelphia; Haynes H. Fellows of the Metropolitan Life Insurance Company; Minnie Jane Sands Robb of the Woman's Medical College of Philadelphia; Edward C. Reifenstein and Herman G. Weiskotten of Syracuse University College of Medicine, and Rolfe Floyd, New York; Frederick H. Howard, New York, and William D. Stroud of the University of Pennsylvania Graduate School of Medicine, Philadelphia.

New York City

Changes at Columbia.—Dr. Samuel T. Orton has been appointed professor of neurology and neuropathology at Columbia University College of Physicians and Surgeons, and Dr. Henry A. Riley as professor of neurology and neuroanatomy. The resignations of Drs. Charles Hendee Smith and Charles N. Dowd as professor of clinical diseases of children and professor of clinical surgery, respectively, will become effective, June 20.

Personal.—Dr. Walter H. Conley will retire from his position as general medical director of the city department of health's hospital division's institutions on Welfare Island and in the Bronx, effective August 1; Dr. Michael J. Thornton, who succeeds Dr. Conley, began his work, June 1.——Dr. Iago Galdston has resigned as director of health education of the New York Tuberculosis and Health Association to become secretary of the medical information bureau of the New York Academy of Medicine.

Need for Maternity Facilities.—The need for additional facilities for caring for maternity cases, particularly in the borough of Queens, with a population of nearly 1,000,000, was shown, recently, in a report from Health Commissioner Shirley W. Wynne. Queens has limited hospital facilities. Of 18,130 babies born last year to mothers residing in Queens, nearly one third were born in other boroughs. Also nearly a quarter of the births to Bronx mothers appeared in other boroughs. The additional lying-in facilities are provided for in new hospital plans. Manhattan and Brooklyn appear to be able to provide maternity facilities for their mothers.

Society News.—The Medical Society of the County of New York, April 15, requested Mayor Walker to order a rehearing of the charges against the twenty-six physicians and surgeons who were dropped in the recent reorganization of Harlem Hospital.——A symposium on the cost of illness was conducted before the Medical Society of the County of New York, May 26, by Charles Edward A. Winslow, Dr.P.H., New Haven, Drs. Nathan B. Van Etten and Charles G. Heyd.——The New York Physicians' Association was recently addressed by Drs. David Marine on "Pathologic Physiology of Graves' Disease" and George W. Crile, Cleveland, "Thyroidectomy—Indications, Methods, Complications, End-Results."

Third Graduate Fortnight.—The third annual graduate fortnight of the New York Academy of Medicine will be held, October 20-31. The general subject this year will be "Medical and Surgical Aspects of Acute Bacterial Infections." The program is arranged in two parts—afternoon clinics to be held in ten hospitals of the city, and evening meetings to be held at the academy. A feature of this year's fortnight will be an exhibit of anatomic and pathologic specimens and material bearing on the various aspects of the subject. The profession generally is invited to attend; no fees will be charged. A complete program and registration blank for special clinics and demonstrations will be mailed on request to the academy.

Woman's Hospital Celebrates Seventy-Fifth Birthday.—The Woman's Hospital of New York recently celebrated its seventy-fifth birthday. When organized, May 4, 1855, it was the only institution in the world established by women for the treatment of diseases peculiar to women. It first accommodated forty patients and had one resident surgeon, Dr. J. Marion Sims. On account of his pioneer work, this hospital is recognized as the birthplace of gynecology. The list of incorporators of the hospital contained the names of some of New York's oldest families. The hospital now accommodates 289 women and infants in its wards and private rooms. It receives no city or state aid, depending on contributions, receipts from private patients and the income from investments.

Hospital News.—A new building will be erected by Mount Sinai Hospital on Fifth Avenue between One Hundredth and One Hundred and First streets to accommodate 120 patients and to cost $1,250,000. The building will be twelve stories high, and, it is expected, will be ready for occupancy next spring. It will be devoted exclusively to the care of patients of moderate means who are unable to afford charges of private rooms but who are able and willing to pay moderate fees for treatment instead of going into public wards. The price will

range from $5 to $6 a bed, each in its own cubicle, including floor nursing service by pupil nurses. The building is planned so that all or any part can utilize graduate group nursing at less than half the present cost. The attending staff is considering the question of adapting the fee of physicians and surgeons to the needs of the middle class.

NORTH CAROLINA

Society News.—The Fifth District North Carolina Medical Society was addressed at Laurinburg, April 8, among others by Dr. Luther T. Buchanan, Jr., on "Early Diagnosis of Pulmonary Tuberculosis in General Practice," and Dr. Oren Moore, Charlotte, "Carcinoma of the Uterus, and Sterility."

OHIO

Hospital News.—The new additions to the sixth and seventh floors of the Babies and Children's Hospital, Cleveland, were recently opened at a cost of $120,000. The additions increase the facilities of the hospital to a great extent, doubling the space of the bacteriologic and serologic laboratories and for the metabolism room, as well as providing an annex library.

Society News.—Dr. Clarence A. Mills addressed the Academy of Medicine of Cincinnati, May 19, on "Geographic or Climatic Influence on the Death Rate from Certain Diseases—Diabetes, Pernicious Anemia and Exophthalmic Goiter."——Dr. John W. Holloway, Cleveland, addressed the Lake County Medical Society at Painesville, May 27, on "Myositis Ossificans."

Dr. Bonifield Honored.—Dr. Charles L. Bonifield, professor of gynecology at the University of Cincinnati College of Medicine, was honored at a testimonial dinner given by more than 500 physicians and friends. Mayor Russell Wilson was toastmaster. A large portrait of himself was given to Dr. Bonifield, which he presented to the University of Cincinnati Medical College, with which he has been so closely associated for the last thirty years. Among the speakers were Drs. George Van Amber Brown, Detroit, Martin H. Fischer and David I. Wolfstein.

OKLAHOMA

Society News.—Dr. Forrest P. Baker, Talihina, addressed the Okmulgee-Okfuskee Counties Medical Society, April 21, on "Tuberculosis in Childhood."——The Muskogee County Medical Society was addressed, April 27, by Drs. Abraham L. Blesh, Oklahoma City, on "Surgical Mortality and Morbidity"; John Z. Mraz, Oklahoma City, on "Diseases of the Upper Urinary Tract" and William W. Rucks, Oklahoma City, on "Perinephric Infections."——Among others, Dr. Alfred I. Folsom, Dallas, Texas, addressed the Garfield County Medical Society, April 28, on the female urethra.——"Postpartum Care" was the subject of Dr. Calvin R. Hannah, Dallas, Texas, before the April 4 meeting of the Grady County Medical Society.——The Muskogee County Medical Society was addressed, recently, by Dr. Robert M. Shepard, Tulsa, on "Lung Abscesses."

PENNSYLVANIA

Society News.—The Seventh Councilor District Medical Society will be addressed, June 13, by Drs. Jay F. Schamberg, Philadelphia, on "Carcinoma of the Skin"; George W. Crile, Cleveland, "Thyroidectomy—Indications, Methods, Complications, End-Results," illustrated, and Harry M. Hall, Wheeling, W. Va., "Should We Lead or Follow?"——Among others, Dr. Orlando H. Petty, Philadelphia, will address the Eleventh Councilor District Medical Society, June 12, on "Management of Some Complications of Diabetes."

Philadelphia

Society News.—The Philadelphia Urological Society was addressed, May 26, by Drs. Wilbur H. Haines and Silvio Miceli on "Torsion of Testicle" and case report; Dr. Francis G. Harrison, "Observations on the Modern Treatment of Syphilis," and Drs. B. A. Thomas and Reader J. Hubbell, Nocturnal Enuresis."

Eradicating Diphtheria.—Philadelphia parents have been requested by the department of public health to assist in the eradication of diphtheria. School children who have not been treated have been urged to avail themselves of the toxin-antitoxin treatment, which is offered free of charge. Last year, 30,000 babies and children too young to go to school were given free treatment. In all, the department has given the diphtheria protection to 364,000 school children. This special drive is to have all children immunized between June 2 and June 20. A check-up will determine what children have been inoculated, but apparently no reference is made to the patient's capacity to pay or to the family physician.

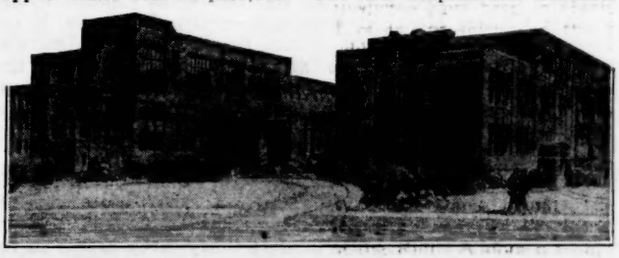
SOUTH DAKOTA

Society News.—Dr. John P. Lord, Omaha, addressed the Sioux Falls District Medical Society, April 8, on "Deformities and Disabilities of the Lower Extremities"; the society was addressed, May 13, at Sioux Falls, by Dr. Edward W. Jones, Mitchell, on "Massive Pulmonary Collapse," and C. F. Franke, Ph.D., state chemist, South Dakota State College, "Malnutrition and Nutrition Studies Due to Diet."——Dr. Roger L. J. Kennedy, Rochester, Minn., addressed the Watertown Medical Society in April on treatment of splenomegalia, illustrated.——The Yankton District Medical Society was recently addressed at Vermilion by Dr. Frederick E. B. Foley, St. Paul, on "Diagnosis and Surgical Treatment of Ureteropelvic Junction Obstructions"; Harry V. Atkinson, Ph.D., Vermilion, "Modern Methods Used in Teaching the Physiologic Action of Drugs."

TENNESSEE

Society News.—The thirty-ninth annual session of the West Tennessee Medical and Surgical Association was held at Jackson, May 15-16. Among others, Drs. John L. McGehee, Memphis, spoke on "Surgical Treatment of Intestinal Obstruction"; Robert B. White, Jackson, "Surgical Treatment of Gastric and Duodenal Ulcers," and Jere L. Crook, Jackson, "Osteomyelitis from Blood Stream Infection with Report of Two Recent Cases."——Dr. Richard A. Barr, Nashville, addressed the Memphis and Shelby County Medical Society, April 15, on "Surgical Principles Involved in the Treatment of Peptic Ulcer"; the society was addressed, recently, by Drs. Frank W. Smythe and Charles H. Heacock, Memphis, on "Uterine Hemorrhage About the Menopause" and "Roentgenologic Diagnosis of Obstructive Lesions of the Small Bowel," respectively.——Drs. Seale Harris, Birmingham, Ala., and Francis C. Grant, Philadelphia, among others, addressed the East Tennessee Medical Association at Kingsport, May 9, on "Home Treatment of Diabetes" and "Treatment of Cranial Trauma," respectively.——The Coffee County Medical Society was addressed, May 8, at Tullahoma by Dr. J. Horace Farrar, Manchester, on "Significance of Abdominal Pain."

Meharry Starts New Medical College.—Work has begun on the new plant of Meharry Medical College. The site, comprising about three city blocks, was bought last winter at an approximate cost of $215,000. The new hospital and the medical, dental and pharmaceutic departments will be under one roof, following the lines, in general, of the new Vanderbilt Medical School. Provision will be made for about 225 medical students, 150 dental students and 100 pharmaceutic students; the hospital will have a capacity of 150 beds. The exterior of the group is of a simple, modern collegiate design, faced with red brick trimmed with limestone. On the first floor are the emergency hospital, autopsy room with body storage and the morgue. Medical and dental facilities are on both the second and third floors. A public health lecture room will be furnished with the latest equipment for the showing of educational films; its seating capacity will be about 600. One of the new features, provided through the generosity of Mr. George Eastman, Rochester, N. Y., who is providing funds for the building of the dental department, is provision and equipment for the training of dental hygienists. This is believed to be pioneer work for Negroes. Meharry's efforts will be directed to the training of Negro youth in the fundamentals of medicine, dentistry, pharmacy and nurse training, and no attempt will be made at elaborate work such as research. The principal participants supplying the money for this $2,000,000 plant are: The General Education Board, Julius Rosenwald Fund, Chicago; Mr. George Eastman, Rochester, N. Y.; Mr. Edward Harkness, New York; Methodist Episcopal Church; city of Nashville; alumni of the college, and other friends of the institution.



WEST VIRGINIA

State Medical Election.—At the annual meeting of the West Virginia State Medical Association, May 20-22, Dr. Cyrus H. Maxwell, Morgantown, was made president-elect; Drs. Albert H. Hoge, Bluefield, and Horace L. Goodman, Ronce-

verte, vice presidents; Mr. Joe W. Savage, Charleston, executive secretary, and Dr. Thomas M. Barber, Charleston, treasurer. The next annual convention will be held in Clarksburg.

GENERAL

Mortality from Automobile Accidents. — The U. S. Department of Commerce announces that, during the four weeks ended May 17, seventy-eight large cities in the United States reported 605 deaths from automobile accidents as compared with 583 during a similar period of 1929. Most of these deaths were the result of accidents occurring within the corporate limits of cities. For the fifty-two week periods ended May 17, 1930, and May 18, 1929, the totals for the seventy-eight cities were, respectively, 8,700 and 7,705, which indicate a recent rate of 26.4 per hundred thousand of population as against an earlier rate of 23.4, or an increase of 13 per cent in the rate in a single year.

Fellowships in Psychiatry.—The Commonwealth Fund of New York has, for a second time, made five fellowships available in the department of psychiatry at the Medical School of Harvard University, for workers who have already shown evidence of good work in psychiatry, who wish to prepare themselves for a career in psychiatry. Each fellowship may be continued for three years, but continuation would depend on the excellence of the work of the fellow. Each fellow would follow a program determined by his special needs and interests. Letters of application, with details as to previous training and experience, may be sent to Dr. C. Macfie Campbell, Boston Psychopathic Hospital, 74 Fenwood Road, Boston.

Society News.—The next annual meeting of the American Psychopathological Association will be held at Atlantic City, June 11; the secretary is L. E. Emerson, Boston.——Dr. Henry Boswell, Jr., Sanatorium, Miss., was elected president of the National Tuberculosis Association, May 8, and Drs. Stuart Pritchard, Battle Creek, and James A. Price, Oakville, Tenn., vice presidents; Dr. Charles J. Hatfield, Cincinnati, and Henry B. Platt were reelected secretary and treasurer, respectively. The next annual meeting will be held at Syracuse, N. Y.—— Dr. George M. Piersol, Philadelphia, was installed as president at the annual meeting of the American Climatological and Clinical Association, May 13; Dr. Arthur K. Stone, Framingham Center, Mass., is secretary.——Dr. Alexander Primrose, Toronto, Canada, was elected president of the American Surgical Association at its annual meeting, May 17, and Dr. Lincoln Davis, Boston, secretary, reelected. The next annual session will be held at San Francisco.——The Central States Pediatrics Society will hold its annual meeting at Memphis, November 7-8.

Appropriations of Commonwealth Fund.—From 1921 to the end of 1928, nearly $3,000,000 was appropriated by the Commonwealth Fund for special grants. Eighty-six separate agencies received ninety-two grants; thirty-seven grants in the field of public health accounted for 27 per cent of the total appropriation. At its April meeting, the fund authorized grants for three problems: the medical care of Negroes, rural health service in sparsely settled districts, and deaths at childbirth. The fund will contribute $100,000 to the Provident Hospital of Chicago, which will help meet the lack of clinical opportunities for Negro medical students. Since the infant mortality rate of New Mexico is among the highest in the country, it is planned to place a public health nurse in each of seventeen counties of enormous area where physicians are few. The fund will supply $43,450 out of a total budget of $59,100. It will donate $47,900 toward the conducting of a three year study of maternal deaths through the cooperation of the committee of public relations of the New York Academy of Medicine and the city department of health. The fund will give $15,000 this year and next toward an annual budget of $20,000 for the preliminary stages of the investigation on the growth, development of the physiologic organs, and functions from infancy to adolescence, to be conducted by the Child Research Council of Denver in association with the University of Colorado School of Medicine; this is expected to take definite shape by 1932 and continue for five years thereafter. The sum of $45,000 has been appropriated to provide five additional three year fellowships in psychiatry at the Boston Psychopathic Hospital.

Medical Bills in Congress.—S. 1171, creating a National Institute of Health, has been signed by the President (Public Law 251). H. R. 8574, transferring certain functions in the administration of the National Prohibition Act from the Treasury Department to the Department of Justice, has been signed by the President (Public Law 273). H. R. 7410, establishing a hospital for defective delinquents, has been signed by the President (Public Law 201). H. R. 9235, authorizing the Public Health Service to provide medical service in the federal prisons, has been signed by the President (Public Law 203). S. 174, proposing to provide for the establishment of a branch home of the National Home for Disabled Volunteer Soldiers in one of the Southeastern states, has been reported to the House with an amendment providing for the establishment of the branch home in one of the Southern states (Report 1655). S. 3344, supplementing the National Prohibition Act for the District of Columbia, has been reported to the Senate, with amendments (Report 736). Section 12 of the bill provides that any physician or pharmacist in the District of Columbia who shall be convicted of a second violation of the National Prohibition Act requiring him to do or abstain from doing any act in his capacity as such physician or pharmacist shall forfeit his license to practice for one year. H. R. 9638, proposing to establish a branch home of the National Home for Disabled Volunteer Soldiers at or near Roseburg, Ore., has been reported to the House with amendments proposing to locate the branch home in one of the Northwest Pacific states.

Bequests and Donations. — The following bequests and donations have recently been announced:

Cornell University, for cancer research, $25,000; New York Hospital, St. Luke's Hospital, Woman's Hospital and the National Committee for the Prevention of Blindness, each $10,000 by the will of the late Mrs. Mary L. Walker Peters.

An institution in St. Louis for chronic invalids is provided for in the will of Mrs. Blanche Bordley; not more than one half the principal of $435,000 is to be used in the construction or acquiring of a building.

Lake View Hospital, Danville, Ill., $200,000 by the will of John H. Harrison to erect a memorial to his mother, Minta Harrison.

Hahnemann Medical College and Hospital, Philadelphia, more than $110,000 by the will of Miss Fanny Augusta Shortridge.

Montefiore, Mount Sinai and Beth Israel hospitals, $5,000 each, and Lebanon and Beth David hospitals, New York, each $2,500 by the will of the late Daniel Richter.

New York Foundling Hospital, New York, $1,000 by the will of the late Mrs. Amalie Wolffram.

Lenox Hill Hospital, $3,333.33; St. Vincent's Hospital, New York Foundling Hospital, Catholic Center for the Blind, Home for Incurables, $25,000 each; Catholic Institute for the Blind, Seton Hospital, each $15,000; $20,000 for cancer research institution to be selected by Dr. Hugo Auchincloss, and $50,000 for neurologic research under Dr. Wilder G. Penfield, Montreal, by the will of the late Mrs. Madeleine L. Ottmann.

Rockville City Hospital, Rockville, Conn., and Hartford Hospital, each $5,000 by the will of Mrs. Ruth T. Britton of Talcottville, Conn.

Mount Sinai Hospital, New York, $100,000 by the will of the late Louis N. Kramer.

Beth Israel Hospital, $1,000, and $500 each to St. Barnabas, Newark Memorial, St. Michael's and St. James' hospitals, all of Newark, by the will of the late Justice Samuel Kalisch of the Supreme Court of New Jersey.

White Plains Hospital, $1,000 by the will of the late Col. Alexander B. Crane.

University of Cincinnati College of Medicine, the endowment of a chair of materia medica and therapeutics to be provided on the death of his widow by the will of the late Dr. Edward G. F. Wendland.

FOREIGN

Personal.—Dr. Julia Marcella Browne has been appointed medical officer of health for the Metropolitan borough of Stepney, East London, England. —— Dr. Leybourne Stanley Patrick Davidson, lecturer in systematic medicine, Edinburgh University, has been appointed regius professor of medicine in Aberdeen University in place of Prof. Ashley Watson Mackintosh, resigned.——Dr. H. J. Wilkinson, formerly senior demonstrator of anatomy at the University of Sydney, has been appointed professor of anatomy at the University of Adelaide, Australia; during the last eighteen months Dr. Wilkinson has been a fellow of the Rockefeller Foundation.

New Hospital in Palestine. — The Peter J. Schweitzer Memorial Hospital was opened in Tiberias, in the Valley of Galilee, May 25. This is said to be the fifth modern hospital to be acquired by Hadassah, the Women's Zionist Organization of America. The hospital was the gift of Americans; more than $30,000 was given by Mr. Schweitzer. The bed capacity is thirty-three. The other Hadassah hospitals are in Jerusalem, Tel Aviv, Haifa and Safed.

CORRECTIONS

Dr. Burns Installed as President.—Dr. John W. Burns, Cuero, was installed as president of the State Medical Association of Texas at its recent annual meeting at Mineral Wells, and Dr. John O. McReynolds, Dallas, made president-elect. THE JOURNAL erroneously stated in its May 24 issue that Dr. McReynolds had been installed as president.

General Infection with a Diphtheroid Bacillus Complicated by Diphtheroid Meningitis.—In the article with this title by Drs. Leo Kessel and Alfred Romanoff (THE JOURNAL, May 24) the statement is made on page 1648 that the diphtheroid organism isolated from the spinal fluid was grown in 5 per cent dextrose broth for three days. This 5 per cent should read 1 per cent.

Government Services

Change of Station in the Navy

The following changes of station have been announced: Comdr. John B. Pollard to the first brigade, U. S. Marines, Haiti; Lieut. James P. Bowles from the navy training station, San Diego, Calif., about June 14, to the Asiatic station; Lieut. Comdr. Francis P. Gardner from the marine barracks, Parris Island, S. C., about August 16, to the naval station, Guam; Lieut. Marshall O. Boudry's resignation has been accepted, effective August 1; Lieut. Comdr. Elmer F. Lowry from the navy hospital, Norfolk, Va., about June 8, to the second brigade, U. S. Marines, Nicaragua; Lieut. Comdr. James A. Brown from the navy hospital, Great Lakes, Ill., to the U. S. S. *Detroit;* Lieut. Richard W. Hughes from the navy hospital, Pensacola, Fla., about May 31, to the U. S. S. *Nokomis;* Lieut. Comdr. Harry L. Brown from the first brigade, U. S. Marines, Haiti, about August 6, to the navy recruiting station, Buffalo; Lieut. Comdr. Percy W. Dreifus from the receiving barracks, Hampton Roads, Va., to the navy hospital, Norfolk; Capt. Raymond Spear to observation and treatment at the navy hospital, Mare Island, Calif.; Lieut. Lester E. McDonald's resignation has been accepted, effective July 19; Lieut. Comdr. John P. Owen to the navy hospital, Great Lakes, Ill.; Lieut. Comdr. Henry M. Stenhouse from the U. S. S. *Detroit* to the navy hospital, Charleston, S. C.; Lieut. Henry A. N. Bruckshaw from the U. S. S. *Aroostook* to the navy air station, San Diego, Calif.; Lieut. Earl B. Erskine to division 22, destroyer squadrons, scouting fleet; Lieut. Harrison L. Wyatt from the U. S. S. *Ramapo* to the navy training station, San Diego, Calif.; Lieut. Henry C. Kellers to the U. S. Naval Observatory for duty in connection with the prospective 1930 eclipse expedition.

The Government Needs Physicians

The U. S. Civil Service Commission states that physicians are needed at the following named establishments of the United States Indian Service: Cheyenne River Agency, South Dakota; Jicarilla Agency, New Mexico; Theodore Roosevelt Indian School, Arizona; Consolidated Ute Agency, Colorado, and Standing Rock School, North Dakota. A medical officer to serve as specialist in pathology is needed at the Veterans' Bureau Hospital at Fort Lyon, Colorado. The entrance salary is $3,800 a year; higher salaried positions are filled through promotion. Those who are interested should write to the civil service commission at Washington, D. C., or to the secretary of the thirteenth U. S. Civil Service District, Denver, and ask for examination announcement number 51 and application blanks numbers 2600 and 2398.

U. S. Public Health Service

Passed Asst. Surg. C. E. Rice was relieved from duty at Ellis Island, N. Y., June 1, and assigned to duty at Rolla, Mo. ——Acting Asst. Surg. J. E. Lewis was relieved from duty in Washington, D. C., and assigned to duty at the marine hospital, Portland, Maine, about May 8.——Asst. Surg. Ralph Gregg has been relieved from duty at marine hospital, Port Townsend, Wash., and assigned to duty at relief station, Seattle.

Graduate Course in Pathology and Roentgenology

The graduate course in clinical laboratory diagnosis, roentgenology and roentgen and radium therapy at Edward Hines, Jr., Hospital, Hines, Ill., which extended from January 6 to April 30, has been brought to a close. Seven veterans' bureau physicians successfully completed the work and have been assigned to various hospitals to take charge of both the clinical laboratory and the x-ray departments. The course was given because of the inability of the medical service to obtain a sufficient number of qualified pathologists and roentgenologists for duty in its hospitals. The pathology course was under the supervision of Dr. Linnaeus H. Prince, and the course in roentgenology under the supervision of Dr. Clinton G. Lyons, Jr.

Army Personals

Lieut. William A. D. Woolgar is relieved from duty at the general dispensary, U. S. Army, Washington, D. C., effective about August 29, and will report to the commandant, Army Medical School, for the purpose of pursuing a course of instruction.——Capt. Kenneth G. Kincaid, Fort Sam Houston, has been directed to proceed to his home about May 31, to await retirement for the convenience of the government.

Foreign Letters

LONDON

(From Our Regular Correspondent)

May 10, 1930.

The Artist's Portrayal of Disease

In an eloquent speech at the banquet of the Royal Academy of Arts, Lord Moynihan, president of the Royal College of Surgeons, said that the earliest known accomplishments of men showed both their artistry and their surgery. While the surgeons drilled holes in prehistoric skulls to release the devils that possessed the patients, artists were drawing with almost modern accuracy the beasts among whom they lived. The connection between art and medicine was shown from the earliest times. From ancient Egypt onward, artists favored the diseased, the dwarfed or the deformed. Ghirlandajo, Velasquez and Leonardo and a multitude of others showed a taste for the grotesque. Their observation was more accurate than that of their critics. On the church of Santa Maria Formosa in Venice is a gargoyle repulsively ugly with a face contorted by spasm and writhing with suffering. Of this Ruskin wrote: "A head—huge, inhuman and monstrous, leering in bestial degradation, too foul to be either pictured or described." He described it as a disgrace illustrating the decadence of the republic. But this was mere petty foolishness, for such grotesque heads were not evidence of a fantastic or debased imagination but faithfully depicted a form of nervous disease, just as a typical example of acromegaly is displayed in the cathedral of Rheims. During the war, Lord Moynihan saw the contemporary bust of the dying Alexander in the Uffizi. The position of the head, the anguish of expression, the contortion of the muscles of the face and neck showed clearly that he was dying of cerebrospinal meningitis. But sometimes the artist was oppressively inaccurate. The Raphael cartoon in the museum of South Kensington depicted a certain man of Lystra, a cripple "from his mother's womb," who had never walked. But he was given the hypertrophied muscles of the athlete. We owed a deep debt to the pre-Vesalian artists who first devoted themselves to the study of anatomy of men and of animals. They regarded anatomy not as a science of dead structure but as concerned with the actions of living structures. The most perfect example was the Dying Gladiator in the Capitol, where the function of the accessory muscles of respiration was portrayed with exquisite perfection.

Radium Treatment of Intra-Ocular Sarcoma

In the *British Journal of Ophthalmology,* Mr. R. Foster Moore, ophthalmic surgeon to St. Bartholomew's Hospital, has reported what seems to be the first case of apparent cure of an intra-ocular sarcoma by radium treatment. A man, aged 65, was admitted to St. Bartholomew's Hospital, Feb. 8, 1929. He had a dense leukoma adherens in the right eye which rendered it blind. For six months, vision had been failing in the left eye. Three weeks before admission he attended Moorfields Hospital, where Mr. Duke-Elder diagnosed sarcoma of the choroid. On examination a large dark globular mass was seen in the lower part of the globe. February 15, a radium seed of 1 millicurie strength filtered through 0.5 mm. of platinum was inserted. Under general anesthesia the ocular conjunctiva was incised and a flap reflected to expose the sclerotic. The sclerotic was then incised and the seed inserted into the growth with black silk attached so as to facilitate finding later. Some headache and shooting pains followed, and the seed was removed after fourteen days. Three months later it was thought that the tumor was a little reduced. June 15, a stronger seed (5 millicuries), with the same filter, was introduced at the same spot and was left in position for ten days. September 3, it was clear that the growth was shrinking. Feb. 18, 1930, it was so shrunken

that it was seen with difficulty. The growth had lost its tense globular shape and showed an irregular surface which was of an ashen gray instead of a dense dark color.

The case shows that an intra-ocular melanotic sarcoma can be made to shrink greatly and perhaps disappear by radium treatment. Mr. Foster-Moore thinks that it is unlikely that actively growing cells can be thrown off from a tumor beginning to regress. If so, the eye will no longer be a source of danger and the patient will be as much protected against dissemination as if the eye had been removed. It therefore seems reasonable to treat any intra-ocular sarcoma with radium when the eye is not seriously injured. With regard to dosage, it seems that 1 millicurie is not sufficient and that 5 millicuries can safely be used.

The Fellowship of Medicine and Post-Graduate Medical Association

In 1919 there was founded, with Sir William Osler as president, an association to provide medical instruction for medical officers from the dominions and from the United States. It was termed the Allied Fellowship of Medicine. In the same year it was amalgamated with the Post-Graduate Medical Association. During 1929, 606 postgraduates availed themselves of the general and special courses, as compared with 506 in 1928. The cosmopolitan character of the members is shown by the following figures: British Isles, 289; Australia, 40; Canada, 38; New Zealand, 16; South Africa, 22; India, 91; United States, 42; South America, 2; Egypt, 7; China, 4; Italy, 2; Japan, 2. Special course lists for the ensuing year are dispatched each October to home and overseas postgraduates, hospitals and universities. In 1929, 5,000 lists were sent out. Fourteen overseas banks in London receive annual supplies of literature to be handed to medical clients. Shipping companies allow supplies of literature to be sent to their surgeons for distribution to medical passengers. In addition to the courses for members, the association arranges a series of lectures open to all physicians free of charge. Last year lectures on "Pitfalls in Medicine and Surgery" were delivered from January to March, and on "Common Complaints" from October to December.

Chlorine Gas Poisoning

In Liverpool, fifteen people were gassed and had to be taken to the hospital as a result of leakage of chlorine gas from cylinders stored in a stable, which was supposed to be due to corrosion of the metal. The gas hung like a bluish pall over the street and whole families had to leave their houses. Of the sufferers, one girl is in a serious condition. Twelve horses were in the stable, of which one died and two others are badly affected.

The Clergy and the Treatment of the Mentally Disordered

Rev. L. W. Grensted is delivering the Bampton lectures at the University of Oxford and has taken for his series the subject of "Psychology and Faith." He said that while physicians were rightly suspicious of amateur interference, the clergy could not avoid being involved in cases of mental disorder. Medical service in this matter he described as utterly inadequate. The ordinary physician, he said, is at least as ill equipped as his parish priest, and treatment by specialists and institutions is long and costly. Further, a large proportion of those mentally disordered seek the aid of religion rather than of the physician who is first in touch with cases in their early stages, where wise treatment offers a good hope of success. For such cases the physicians have no time, and neither the patients nor their friends see the need of expert advice. A serious factor is the stigma from the case being described as "mental." A skilled pastor can often give real help. The actual cure of mental disorder rested on faith in the psychologist. The psychologic theory of this was that of transference, and psychoanalysts held that it was through this transference, in which the patient came to depend on the physician, that the disorder was cured. But the Christian doctrine of forgiveness was also the creation of an individual relationship between man and man. If Christianity went further and saw in this principle something which had a meaning for the universe, that was not contradicting psychology but only carrying its principles further.

PARIS

(From Our Regular Correspondent)

April 30, 1930.

Opening of Dormitory for American Students in Paris

The dormitory at the University City in Paris for American students was opened, April 28. The corner stone had been laid two years before by the late Myron T. Herrick. The building is completely finished and students will take possession, May 2. It is a five-story building of red brick with white trimming, surrounded by trees and a beautiful lawn with flowers. It contains 275 rooms for students, a separate wing being devoted to each sex. There are ten workshops for painters, sculptors and musicians; an immense restaurant, several salons and studios, a large banquet hall, a magnificent library—the gift of the Carnegie Foundation of New York, and it boasts of two terraces, from which a view of the whole city of Paris may be obtained. At the opening ceremonies, held in the banquet hall, were the president of France and the ambassador of the United States, the Hon. Walter E. Edge, together with a large and select assembly, which included many eminent political dignitaries and university officials and many prominent members of the American colony in France. On the platform, among others, were Mr. Marraud, minister of public instruction; Dr. and Mrs. Homer Gage, the founders of the dormitory; Mr. J. Ridgley Carter; Mr. Honnorat, the organizer of the Cité universitaire; Mr. Charléty, rector of the Académie de Paris; the four deans of the Facultés de Paris; Mr. Chiappe, prefect of police; Mr. Renard, prefect of the Seine; Mr. d'Andigné, president of the municipal council; Mr. Chlapowski, ambassador of Poland; the comte du Chaffaut, representing the Comité franco-américain, the ministers François Poncet and Oberkirch, and delegates from American universities. After rendition of the American anthem and the Marseillaise by the Fifth Regiment Infantry Band, Mr. Charléty, Mr. Honnorat and Mr. Marraud called to mind the conditions under which the new pavilion, or dormitory, had been built. They emphasized the symbolism found in the participation of the United States in the beautiful work of international rapprochment, in which the Cité universitaire represented an accomplished fact. After recalling with regret the passing of Myron T. Herrick they paid homage to the generosity and activity of Dr. and Mrs. Homer Gage, who were the founders of the Maison américaine. In his reply Mr. Gage brought out that it is by living and working together that young persons learn to know and to understand one another better, and that such movements furnish effective support to universal peace. Mr. Edge expressed similar views and emphasized that the American's fondness for realities did not exclude the cultivation of idealism. The president of the republic then took a position at the head of a group, and a tour of the pavilion was made. He remarked with pleasure on the frescoes that adorned the banquet hall, which were painted by Mr. la Montague Hubert and by his American pupils of the Ecole de Fontainebleau. The director of the maison will be an American, Mr. John Rea Bacher, an instructor in the University of Pennsylvania. The cost of the dormitory was $400,000, the funds having been collected by the two committees, Comité d'Amerique and Comité de France, with a large donation by Mr. and Mrs. Homer Gage. Already, it seems, there are five or six times as many requests for rooms in the dormitory as there are rooms. Instead of 275 rooms, there should be 1,500, for there are not less than 4,000 American

students in Paris, and it has been remarked that they are so correct in their habits, so studious and so attached to their work that their presence in the large city is scarcely observed. Owing to a fine arrangement, which accentuates the spirit of international fraternization that characterizes the Cité universitaire, fifty French students of the Fondation Deutsch de la Meurthe, who reside in a neighboring dormitory, will have quarters in the Maison américaine, while fifty American students are to be given accommodations in the Maison française. The Cité universitaire attaches great importance to its frankly international character. This fact was brought out by the American ambassador, in the closing words of his address, which made a great impression and which was reproduced, almost in its entirety, by all the papers of the city.

The League Against Rheumatism

There is in France a society founded for the express purpose of combating rheumatism, the Ligue contre la rhumatisme. The society has just convened in regular session in Paris, the meeting having been held in the lecture hall of the Musée social, under the chairmanship of Prof. Marcel Labbé. It proposes to coordinate the functioning of consultation centers and specialized hospital services for the diagnosis and treatment of rheumatic conditions. It collaborates with the international periodical published in Holland under the title *Acta rheumatica,* and is a constituent society of the international league that is devoted to the same purpose. It plans to collect a library, containing, as far as possible, everything that is published in the world on the subject of rheumatism. The first scientific papers were presented on the occasion of this meeting, which was attended by many physicians of Paris and the provinces. The following topics were discussed: (1) Acute Essential Rheumatismal Myocarditis (Professor Etienne); (2) Rheumatism and Syphilis (Professor Caujoux); (3) Calcemia in Rheumatism (Dr. M. P. Weil); (4) Gonorrheal Rheumatism (Dr. Léri). Five special consultation centers for rheumatism have been organized in the various hospitals of Paris and two at the mineral springs in Aix-les-Bains, in Savoy.

A New Surgical Society

A new surgical society has been created in Paris, called the Société de chirurgie réparatrice et esthétique. It comprises the specialists in plastic surgery, which has of late years greatly increased in importance. The founders of the new society are Dr. Dartigues of Paris and Dr. Cloué of Bordeaux. Its announced program is to contribute, by its discussions and its publications, to the progress of this special branch of the surgical art.

Hepatic Insufficiency and Intestinal Toxins

Professor Vincent delivered an address recently before the Academy of Medicine in which he pointed out the important part played by the insufficiency of the biliary secretion in the genesis of *Bacillus coli* in the intestine and the formation of its toxins. He emphasized the significant rôle of the toxins secreted by *Bacillus coli* in certain intestinal conditions and in general nervous disorders. While, in a healthy organism, these toxins are neutralized by the secretions of the digestive tract and the bile, the neutralization is not effected in a diseased organism. The treatment of such patients by injections of anticolibacillary serum has proved effective.

The Proposed Ethical Order of Physicians

The question of an ethical order of physicians continues to be the subject of endless controversies in medical circles. For many years, the creation of an ethical order of physicians, similar to the already existing ethical order of lawyers, has been advocated by certain groups, who contend that such a body would aid greatly in deciding questions of discipline that arise among physicians with regard to misdemeanors of a professional nature. The Academy of Medicine has intervened, and, after a long discussion of the question, it has formulated a project that has been submitted to the minister of health. It has given to the proposed organization an official character by delegating, in the future councils on departmental discipline, the preponderant authority to the professors of the faculties of medicine. The minister has taken the project under consideration and has promised to formulate its legal application. The opinions among the practitioners have been modified. They look with disfavor on the suggestion that the ethical order of physicians should be composed of faculty professors and resent any interference in their affairs. They admit that the Academy of Medicine and the faculties of medicine represent an élite scientific body of men; but they point out that their experience has been entirely different from that acquired by the daily practice of the medical profession. They would prefer that the professional tribunals be composed of delegates from the medical syndicates and be chosen by the practitioners of each department, by reason of their honorable character and their knowledge of the difficulties that arise in the daily practice of medicine, in contact with the public and with the authorities, rather than for their knowledge of technical science. They fear, in brief, to be given as masters over them men whose superiority in the field of pure practice they cannot accept, and the specter rises before them of a sort of aristocracy founded on university degrees, which might be unduly severe in their handling of the modest practitioners. Also the *Informateur médical,* echoing the laments of the practitioners, has taken a strong stand against the creation of an ethical order of physicians, which has been so long demanded but not under the form as at present proposed. It declares that an ethical order of physicians would be inopportune; for it would be: (1) either useless; since misdemeanors of the graver type are liable to trial in courts of justice, which is sufficient, and the question of canceling a physician's license to practice by reason of misdemeanors other than grave delicts could not reasonably be considered; (2) or oppressive; for it would punish unjustly and monstrously physicians for misdemeanors for the most part of little importance. Finally, by compelling the physicians of today to return to the old corporations, such an order would constitute an antidemocratic and arbitrary measure, imposing penalties without limit and without equity, and taking the bread out of the mouths of honorable practitioners, often for futile reasons.

ITALY

(From Our Regular Correspondent)

Rome, March 31, 1930.

Climatic Medicine and Athletic Records

The Congresso di medicina climatica was organized by the Società medica di Brescia and was held at Ponte di Legno, under the chairmanship of Professor Secchi.

Professor Herlitzka, director of the Instituto di fisiologia in Turin, presented the official paper on the topic: Study of the Physiologic Effects of High Plateau Regions. The speaker gave an extended account of the researches pertaining to the causes of the therapeutic action of the sun in high altitudes. He discussed acclimatization from a physiologic point of view and explained the research being carried on at the Istituto Mosso, located on Col d'Ollen, about 3,000 meters above the sea level. This institute, founded by Prof. Angelo Mosso for research on the physiology of mountain regions, was the first of the kind. Now there is a similar institute on the Jungfrau, in Switzerland, to the financing of which the principal nations of Europe contributed.

Professor Devoto, director of the Clinica di malattie del lavoro of the University of Milan, spoke on mental hygiene, and suggested the value of suspending the lessons in the southern schools for one month, preferably the month of February. He pointed out that boys between the ages of 10 and 15 are passing through the most delicate period of their existence,

and a great number of them are unable to endure, without harm, the numerous antihygienic factors associated with school attendance. Many boys in Italy are exposed to disease due to overwork in school, and sometimes suffer from arrested development and morbid phenomena that may even compromise their existence. A sojourn in a high mountain region, especially in the spring season, will increase their physical and mental strength. In such cases the so-called nonspecific stimuli act on the organism, being potentiated by the peculiarities of the climate: the various radiations from the earth and the sky, the rarity of the winds, and the dryness of the air. The communication of Professor Devoto was followed by a general discussion.

Prof. Giovanni Pini, medical inspector of sport activities, presented a paper dealing with the sport record card, which is made out for every person who becomes a member of an athletic or sport association. The mere fact of the existence of such a card tends to eliminate from sports the unfit. As a result of the deliberations of the Comitato nazionale medico di cultura fisica, the record will be divided into two parts, one for the physician and one for the trainer. The physician must collect the anamnestic data, make the physical examination, record various physiologic measurements, and evaluate the functional capacity of the organism in connection with sports. He must study the relation between the work of the heart and the lungs, on the one hand, and the higher nervous functions, on the other. When the heart and lungs function perfectly, a peculiar state of mental well being usually results, together with a healthy state of self-confidence and autosuggestion, the integrity of which is of prime importance, in connection with sport.

Before expressing final judgment on the physical evaluation, the physician must coordinate his observations with those of the trainer, who will have tested the person in various sports, recording data pertaining to strength, speed, resistance, style or form. This part of the record book is kept with especial care. The various dysmorphisms are considered and the principal signs of overtraining are classified: weak heart, abnormal blood pressure and the like. The weakening effects of every unfavorable factor are evaluated, a special graduated scale being employed for that purpose.

Mortality from Tuberculosis Declines

The mortality from tuberculosis has diminished in Italy from 149 deaths per hundred thousand inhabitants in 1913 to 134 in 1927. These results are due in part to the organization of the antituberculosis crusade, the decline being proportional to the energy displayed in the prosecution of the crusade.

Research on Malignant Tumors

At a recent meeting of the Comitato per lo studio dei tumori, in Turin, Professor Morpurgo discussed the experimental researches carried out at the Istituto del cancro, on the biology of tumors. The studies on the effects of "reticulo-endothelial block" show that it retards the development of the tumor and lengthens the life of the experimental animal. Regarding the development of the nerves of the tumor, numerous experiments have shown that the neoplastic tissue may be a good soil for the development of nerve extensions and terminations, which may remain, however, independent of the tumor. With reference to the etiology of tumors, various experiments (introducing, for instance, pieces of benign neoplastic tissue or of embryonal tissue in the center of a malignant tumor) show that the benign tumor tissue or embryonal tissue may live, under these conditions, as a saprophyte without acquiring characters different from its own. These experiments, in substance, speak against the infectious nature of malignant tumors of mammals.

Dr. Carando presented cases of cancer of the tongue in which radium therapy had been successfully employed. The author advised radium treatment by means of implantations throughout the lingual lesion, and surgical treatment for the glands if they are removable; otherwise radium therapy is to be applied also to the glands.

Professor Pescarolo, president of the Turin center for the study of tumors, presented a paper on the referendum on cancer of the cervix of the uterus. These were the conclusions: This form of cancer does not seem to be increasing in frequency. It constitutes about one third of all forms of cancer in women, being in direct relation with sexual activity, births and miscarriages; it is rare in nulliparas. It is more frequent among the lower social classes than among the well-to-do. On the basis of the referendum, special study will now be devoted to the prophylactic criteria to be recommended in regard to personal hygiene and obstetric aid.

Also at Milan, a meeting was held, at the Istituto del cancro, of the physicians of Lombardy interested in research on tumors. Professor Tausini of Pavia spoke on "Hyperemia in the Genesis of Cancer." Professor Fichera, director of the institute, described a rare case of recurrent chronic intestinal invagination from cancer of the cecum. Professor Perussia reported the favorable results that he had secured by means of radium therapy in extensive skin cancers of long standing. He presented a number of patients thus treated. Professor Rondoni explained the trends of experimental research being carried out at present in the biologic section of the Istituto del cancro.

BELGIUM

(From Our Regular Correspondent)

March 31, 1930.

Meetings in Liége During Centenary Celebration

At the Exposition universelle de Liége on the occasion of the centenary of Belgium's independence, the following medical meetings will be held:

July 18-21, Assemblée internationale des services de santé des armées. Chief topics on the program: (1) Creation of a Central Bureau of Medicomilitary Documentation; (2) Advantages Gained from an Exchange of Military Physicians; secretary, Major Voncken, of the army medical corps (Liége).

July 25-26-27, Société belge de gynécologie et d'obstétrique. Chief topics on the program: (1) Radiotherapeutic Treatment of Cancer of the Uterus; (2) Remote Results of Low Cesarean Section; (3) Individual Communications. General secretary, Dr. Cheval (Brussels).

July 26-27, Dixième congrès belge de neurologie et de psychiâtrie. Chief topics on the program: (1) Congenital Disorders of Speech; (2) Angioneuroses. Secretary, Dr. Leroy, rue Hemricourt, 30, Liége.

September 14-18, Cinquième congrès international de physiothérapie. Chief topics on the program: (1) Rheumatism and Its Physical Therapeutic Treatment; (2) Disorders of the Central Nervous System Amenable to Physical Therapy; (3) Status of Instruction in Physical Therapy for Physicians. General secretary, Dr. Dubois-Trepagne, 25, rue Louvrex, Liége.

September 18-20, Deuxième congrès contre le rhumatisme. Chief topics on the program: (1) Classification of Rheumatismal Disorders; (2) Standardization of Blood Analyses; (3) Disorders of Skin Circulation in Chronic Rheumatism. Secretary, Dr. Marcel Ory, 22, rue Lambert le Bègue, Liége.

June, 1930, Congrès d'urologie. Chief topic on the program: Normal and Pathologic Physiology and Neuropsychophysiology.

September 23, Vingt-et-unième congrès français de médecine. Chief topics on the program: (1) Medical Pathology: Hyperthyroids; (2) General Pathology: The Metabolism of Calcium; (3) Therapeutic Indications of Insulin Aside from Diabetes. General secretary, Dr. Roskam, professor in the University of Liége.

September, Congrès des maladies professionnelles et accidents de travail. Chief topics on the program: (1) Studies on Occupational Accidents; (2) Occupational Diseases; (3) Inspection

of institutions of social and industrial medicine. General secretary, Dr. Ledent, 24, rue Sainte Marie, Liége.

Trachoma and Nasal Lesions

At the thirty-fifth Congrès belge d'oto-rhino-laryngologie, Sargnon and Jacques Rollet reported eighty-three cases in which they made nasal and perinasal examinations in cases of trachoma. The patients were, for the most part, men and women employed in the chemical industry—chiefly foreigners, living under defective conditions. Of the eighty-three cases, nineteen were in children. There were twenty-three cases in Spaniards, nineteen in Algerians, seventeen in Italians, five in Armenian refugees, five in Moroccans and ten in Frenchmen, some of whom came from north Africa. Of nasal lesions, the authors observed more especially hypertrophy of the turbinated bones (forty-four cases), usually bilateral, seven cases of frank polypoid hypertrophy, one case of large papilloma, four cases of folliculitis of the nares, nine cases of chronic nasal suppuration, and ten cases of more or less opaque maxillary sinuses. In three trachomatous patients there were atrophic lesions of the turbinated bones, scabby lesions, and pseudo-ozenous lesions, probably of a syphilitic nature. There were adenoid growths in four cases and enlarged tonsils in five trachomatous patients.

The authors draw these conclusions: 1. In the clinic, nasal and perinasal lesions are frequent in association with ocular trachoma. They are concomitant with or secondary to the ocular lesion but remain of the ordinary type. 2. If one hopes to obtain a more rapid amelioration of trachomatous ocular lesions and prevent their aggravation, it is necessary to treat promptly and thoroughly the nasal and perinasal lesions.

International Congress of Public and Private Aid

The international committee of the Congrès d'assistance publique et privée met recently in Brussels. Thirty-three nations have become members of this organization, which, under the chairmanship of Mr. Emile Loubet, formerly president of the French Republic, has held several congresses, notably those at Copenhagen, Paris and Geneva. It has been decided that the seventh congress will be held in 1931. The delegates conferred the honorary presidency on Mr. Emile Loubet and the active presidency on Mme. la Comtesse Carton de Wiart, previously vice president. Mr. Georges Roudel, honorary inspector general of the services of the Assistance française, will assume the duties of secretary-treasurer.

The Medical Examination of Nurses

In an address delivered recently before the Association belge des hôpitaux, Mr. Dronsart discussed the medical examination of nurses. He took up the mode of recruiting nurses for societies and institutions. As there is a scarcity of nurses, the directors of these organizations are chiefly interested in the professional ability of the candidates and rarely concern themselves with their state of health. No health examination worthy of the name is made before the candidate's acceptance. Hence, it happens that, after a few weeks or months of work, nurses are taken sick and remain for long periods at the charge of the institutions employing them. A medical examination at the time of their admission would have made it possible to take account of the state of their health, and proper measures might have been taken. Nurses should be subjected to a thorough medical examination before entering on a new service.

When nurses are taken sick, in the hospital institutions they are of course treated gratuitously for some time. But, if the sickness is prolonged, the management faces a difficult situation. The question arises whether the patient shall continue to receive gratuitous care or whether the nurse shall be dismissed from the service, which will usually place her in a precarious position. In the interest of both parties, it appears that the way to prevent such difficulties would be the compulsory affiliation of the nurse in a health insurance society.

BERLIN

(From Our Regular Correspondent)

April 28, 1930.

The International Hygienic Exposition

The exhibit of the Internationale Hygiene-Ausstellung, displayed in Dresden in 1911, has been extended and enlarged under the name of the Deutsches Hygiene-Museum. The extensive collections are to be housed in a monumental structure which will be dedicated in Dresden, May 16. At the same time, an international hygienic exposition will be organized and opened, May 17. A presentation of the rules in regard to the care of health, which are held up to us on every hand until we grow weary of them, would not have justified such a vast expenditure, had it not been that it appears necessary to take a definite position before the public toward the numerous modern types of injuries that are the outgrowth of civilization and culture, industrialization and polytechnic development. The exposition is an attempt to solve in a measure the present problems of hygiene: decline of the birth rate, general mortality and infant mortality, physical exercise, industrial hygiene and the hygiene of labor in general, general care of the body, nutrition, clothing, housing, the life of the housewife from the modern hygienic point of view, mental hygiene, public hygiene, philanthropy and social welfare. The exposition is divided into several departments, toward the organization of which numerous scientists have contributed. In the Exposition of *Reich*, Provinces and Cities, the German *reich* will give an historical, cultural survey of a "Century of Development of Germany's Public Health Service." The various German *länder*, as the components of the *reich* (Germany) are now called, will display, in a compact exhibit, one or more typical features of their hygienic problems. The Free State of Saxony, as the chief supporter of the whole exposition, has assumed special responsibilities; but Prussia, Bavaria, the Hanse cities (Lübeck, Hamburg and Bremen), Hesse and Thuringia are contributing to the success of the undertaking. Under the guidance of the organization the Deutscher Städtetag, the German cities have conceived the idea of arranging a collective exhibit. Taking as the main theme "The Organization of the Health Services of German Cities," the whole field of communal hygiene and health care and culture will be portrayed under twelve separate and distinct departments or divisions, the various cities cooperating in preparing the displays or exhibits. Thus, not every city will have an exhibit of its own, which, owing to the large number of cities and the frequently identical or similar nature of their hygienic problems and arrangements, would have doubtless given rise to many duplications.

In the "Exhibition of the Nations," numerous foreign countries, the health section of the League of Nations, and the International Bureau of Labor will give a survey of their hygienic arrangements and their activities. The portrayal of "The Scientific Professional Groups" has been entrusted to the Hygiene-Museum and to the Hygiene-Ausstellung. There are twenty-one such groups, the special exhibits of which are found on the exposition grounds, some of them in the new building of the Deutsches Hygiene-Museum, and some of them in the exposition halls located in the immediate vicinity. The following seven groups are portrayed by the Deutsches Hygiene-Museum and the exhibits are in the new building of the museum: (1) Man (*Homo sapiens*); (2) Hereditary Transmission and Eugenics; (3) Woman as Wife and Mother; (4) Dietetics; (5) Health and Diseases; (6) Hygienic Instruction of the People; (7) Health Culture as Revealed by History and Ethnology. In addition, there are fourteen more distinctly scientific groups: (1) General Care of the Body; (2) The Child; (3) Woman in the Family or Engaged Occupationally; (4) Physical Exercise; (5) The Hygiene of Labor and Industry; (6) Food Products; (7) Agriculture, Including the Hygiene of Meat and Milk; (8) Climate; (9) Clothing; (10) Dwelling and

Settlement; (11) The Combating of Vermin and Disinfection; (12) Healthy Mental Existence; (13) Superstition in Relation to Health. The excellent special exhibit "The Hospital" is devoted to the many new and far-reaching problems of hospital construction and organization. These fourteen groups correspond, at the same time, to a like number of departments of the exposition in which industry, suggestively in close proximity to the appropriate scientific exhibit, embraces the opportunity of presenting its products and methods for the carrying out of hygienic desires and demands.

Opponents of Prohibition Favor Abstinence in Automobilists

Addressing the Verein der praktischen Aerzte in Berlin, Sanitätsrat Müller de la Fuente, chairman of the Abwehrbund, which combats the introduction of prohibition in Germany, opposed the radical endeavors in favor of abstinence from alcoholic beverages. As he viewed the problem, physicians should educate the youth in favor of temperance and the passage of laws with an educative trend. When asked what he had in mind by laws with an educative trend, he cited the following example: "An automobilist or motorcyclist who, before or during his journey, partakes of alcoholic beverages to the extent that the normal and sound inhibitions are impaired should be liable to severe punishment even though no accident actually resulted as a consequence of his indulgence."

Population Decreases in German Cities

The demographic commission of the reichstag has been considering the vital statistics of the larger German cities during the period 1900 to 1927. In all the larger German cities there has been a rapid decrease in the excess of births over deaths. Berlin, in fact, has an excess of deaths over births; in 1900, Berlin's excess of births over deaths was 7.7 per cent, and in 1927 there was an excess of deaths over births amounting to 1.4 per cent. Next comes Munich, the capital of Bavaria. There the excess of births over deaths in 1900 was 10.6 per cent, and since then there has been a downward trend, until, in 1927, the low point of 0.9 per cent was reached. Only slightly better are the reports from Dresden with 1.2 per cent, Hamburg with 1.4 per cent, Frankfort-on-Main and Magdeburg with 1.6 per cent, Altona with 1.7 per cent, and Leipzig with 2.0 per cent. In the remaining German large cities the figures are somewhat higher, but in few is the excess of births over deaths above 10 per cent, whereas, around 1900, the percentages ranged from 15 to 20, with one example of 34 per cent.

Causes of Death in Berlin

The Bureau of Statistics of Berlin reports that the chief cause of death in 1929 in Berlin was "cancer and other malignant neoplasms," the total number of deaths from that cause having been 6,985, or 13 per cent of the total deaths from all causes. The number of cancer deaths, which in 1928 was 6,896, is marked by a further increase, whereas tuberculosis of the respiratory organs, to which in 1929 4,017 persons succumbed, evidences a decline. Both phenomena are explained by the peculiar distribution of the age groups in Berlin. Among other causes of death, heart disease claimed a total of 6,776, who, as with the victims of cancer, belonged chiefly to the older age groups. Most persons who died from cerebral hemorrhage or from diseases of the vascular system (5,560 and 5,065, respectively) were more than 50 years old, whereas tuberculosis claimed most of its victims in the 20 to 30 age groups. Pneumonia carried off 2,969 persons. Among other diseases that are represented by a relatively large number of victims are the diseases of the nervous system (1,508) and of the digestive tract (1,299). The maximal number of deaths occurred in January (7,264, or 13.5 per cent), and the minimal number in August (3,590).

Marriages

SAMUEL KENDIG WALLACE, Portsmouth, Ohio, to Miss Christine Tyson of Farmville, N. C., in Baltimore, April 5.

PAUL H. BEPPLER, Acosta, Pa., to Miss Carolyn Christensen of Sioux City, April 21.

JACOB EDGAR REISCH to Miss Gladys Wilson, both of Springfield, Ill., May 3.

GEORGE F. COOK, Bellingham, Wash., to Miss Ella V. Musser, March 22.

MAURICE LEVY, Denver, to Mrs. Leah Weiner Kornman, in Littleton, April 11.

Deaths

George Ellsworth Chamberlain, Aberdeen, Wash.; College of Physicians and Surgeons, Chicago, 1893; member of the Washington State Medical Association and the American College of Surgeons; formerly president of the Aberdeen General Hospital; aged 65; died, April 13, of cerebral hemorrhage.

Alexander R. Leith, Wilton Junction, Iowa; State University of Iowa College of Medicine, Iowa City, 1882; member of the Iowa State Medical Society; formerly mayor, member of the city council and president of the school board; bank president; aged 73; died, May 3, of acute nephritis.

Evan Stark Evans ✠ Grinnell, Iowa; Rush Medical College, Chicago, 1906; served in the Spanish-American and World wars; county coroner and health officer of Grinnell; aged 49; died in May, at the University Hospital, Iowa City, following an operation for gastric ulcer.

James Norbert Lyons, Halifax, N. S., Canada; Dalhousie University Faculty of Medicine, Halifax, 1916; demonstrator in pathology and in clinical surgery at his alma mater; aged 39; died, April 19, in the Victoria General Hospital, of septic pneumonia, following a facial infection.

Flaviano Sebastian Nicholas Laudati, Providence, R. I.; Missouri College of Medicine and Science, St. Louis, 1922; Royal University of Rome Faculty of Medicine and Surgery, Rome, Italy, 1925; aged 34; died in April at the Jackson Memorial Hospital, Miami.

Julius Edgar Moith, Newburgh, N. Y.; Medical Department of Columbia College, New York, 1879; member of the Medical Society of the State of New York; formerly health commissioner of Beacon; aged 74; died, May 14, of cerebral hemorrhage.

Jacob Fridline, Ashland, Ohio; Western Reserve University School of Medicine, Cleveland, 1896; member of the Ohio State Medical Association; served during the World War; on the staff of the Ashland Hospital; aged 65; died in May of pneumonia.

Clarence Andreas Hofer, Metuchen, N. J.; Jefferson Medical College of Philadelphia, 1899; member of the Medical Society of New Jersey; on the staff of the Muhlenberg Hospital, Plainfield, where he died, May 5, of influenza and uremia, aged 63.

John N. Smith, Salem, Ore.; Willamette University Medical Department, Salem, 1881; at one time member of the state legislature; formerly superintendent of the Oregon State Institution for Feebleminded; aged 77; died, April 20, of heart disease.

Constantine J. MacGuire, New York; L.R.C.S., Ireland, and L.K.Q.C.P., Ireland, 1869; formerly on the staffs of St. Vincent's Hospital, New York, St. Joseph's Hospital, Far Rockaway, and St. Joseph's Hospital, Yonkers; aged 82; died, May 5.

Frank Baldwin Bergen, Roosevelt, N. Y.; Long Island College Hospital, Brooklyn, 1894; for many years medical officer of local schools; aged 58; died, May 14, in the Central Islip (N. Y.) State Hospital, of carcinoma of the pylorus.

Joseph Leon Gagnon, Rumford, Maine; Laval University Faculty of Medicine, Quebec, Canada, 1902; member of the Maine Medical Association; formerly health officer of Lewiston; aged 51; died, May 9, of cerebral hemorrhage.

Edward L. Partridge, New York; Medical Department of Columbia College, New York, 1875; member of the Medical Society of the State of New York; aged 77; died, May 2, in the Fifth Avenue Hospital, of thrombosis.

J. Lynn Crawford ⊕ Cedar Rapids, Iowa; University of Pennsylvania School of Medicine, Philadelphia, 1897; on the staffs of the Mercy Hospital and St. Luke's Methodist Hospital; aged 56; died in May of heart disease.

Alexander Coburn Soper, Jr., Santa Barbara, Calif.; Rush Medical College, Chicago, 1901; member of the California Medical Association; served during the World War; aged 58; died, May 9, of cardiovascular disease.

Mary Louise Strobel, Washington, D. C.; National University Medical Department, Washington, 1896; for many years on the staff of the Sibley Hospital, where she died, April 23, of cerebral hemorrhage, aged 76.

Oscar Herman Elbrecht ⊕ St. Louis; Washington University School of Medicine, St. Louis, 1901; member of the American College of Surgeons; aged 52; died, May 5, in St. Luke's Hospital, of bronchopneumonia.

George W. Gabriel, Parsons, Kan.; Kansas City (Mo.) Medical College, 1871; Civil War veteran; formerly mayor, member of the state legislature, and state senator; aged 86; died, April 29, of senility.

Allen W. Dortch, Arkansas City, Kan.; American Medical College, Indianapolis, 1895; University of Medicine, Indianapolis, 1898; served during the Spanish-American War; aged 55; died, March 21.

Bertha Allen Greer ⊕ Lamoni, Iowa; Homeopathic Medical College of Missouri, St. Louis, 1897; aged 74; died, April 15, in a sanatorium at Independence, Mo., of complications, following fracture of the hip.

Robert **Young Cox,** Cleveland; University of Texas School of Medicine, Galveston, 1926; member of the Ohio State Medical Association; aged 29; died, May 2, of heart disease, following extraction of a tooth.

Franklin Greeley Wescott, La Salle, Ill.; Bennett College of Eclectic Medicine and Surgery, Chicago, 1897; aged 57; died, May 13, in St. Mary's Hospital, following an operation for appendicitis.

Everett **Menzies Raynor,** Long Beach, N. Y.; Medical Department of Columbia College, New York, 1881; formerly on the staff of the Lincoln Hospital, New York; aged 71; died, April 20.

David **Clark Owings,** Middletown, Md.; College of Physicians and Surgeons, Baltimore, 1875; aged 75; died, May 9, in Mount Airy, of carcinoma of the stomach, with metastasis of the liver.

Zane Hughes, Miami, Fla.; New York Medical College and Hospital for Women, 1893; aged 63; died, April 10, of injuries received in an automobile accident which occurred in January.

Elmer **Noah Piper** ⊕ New Kensington, Pa.; Western Pennsylvania Medical College, Pittsburgh, 1902; aged 64; died, May 8, in the Citizens General Hospital, of tuberculous osteomyelitis.

Henry C. Pierson, Roselle, N. J.; Georgetown University School of Medicine, Washington, 1868; member of the Medical Society of New Jersey; Civil War veteran; aged 86; died in March.

Frank Jones Farley, Trenton, Ont., Canada; Queen's University Faculty of Medicine, Kingston, 1894; past president of the Ontario Medical Association; aged 68; died in March.

John **Joseph O'Brien** ⊕ Schenectady, N. Y.; Medico-Chirurgical College of Philadelphia, 1902; on the staff of the Ellis Hospital; aged 61; died, May 12, of coronary thrombosis.

Sidney Corbin Ainsworth ⊕ Volga, Iowa; St. Louis College of Physicians and Surgeons, 1899; aged 53; died in April in Rochester, Minn., of coronary occlusion with complications.

Octavius Barrell Shreve, Salem, Mass.; Medical Department of Columbia College, New York, 1865; member of the Massachusetts Medical Society; aged 88; died, March 13.

Frederick O. Tefft, Stanton, Mich.; Howard University School of Medicine, Washington, D. C., 1891; aged 68; died, April 26, in a hospital at Lakeview, of barbital poisoning.

Asa McClure Strong, Indianapolis; Indiana Medical College, Indianapolis, 1870; Civil War veteran; aged 88; died, May 15, of peritonitis, following a ruptured gallbladder.

Arthur Whitman Underwood, St. Augustine, Fla.; Long Island College Hospital, Brooklyn, 1891; member of the Florida Medical Association; aged 65; died, April 1.

Robert F. MacFarlane, Flushing, N. Y.; Albany Medical College, 1888; member of the Medical Society of the State of New York; Civil War veteran; aged 87; died, May 8.

George Milton Pell, Carbon, Ind.; Medical Department of Butler University, Indianapolis, 1880; member of the Indiana State Medical Association; aged 78; died, April 21.

William T. Twitty, Kenmore, N. Y.; University of Buffalo School of Medicine, 1889; member of the Medical Society of the State of New York; aged 68; died, April 21.

Nathan C. Mackey, Waverly, Pa.; Medical Department of the University of the City of New York, 1875; aged 81; died, April 21, of phlebitis obliterans and hemiplegia.

Thomas Jefferson Slaton, Greenville, Ky.; St. Louis Medical College, 1873; Confederate veteran; formerly member of the state legislature; aged 86; died, May 7.

Arthur Frank Amadon, Boston; Dartmouth Medical School, Hanover, N. H., 1893; member of the Massachusetts Medical Society; aged 71; died, March 29.

Samuel W. Flanagin, Sevierville, Tenn.; Tennessee Medical College, Knoxville, 1894; aged 65; died, April 14, at the home of his daughter in Knoxville.

Ella Frances Gatchell ⊕ Chico, Calif.; College of Physicians and Surgeons, Boston, 1889; on the staff of the Enloe Hospital; aged 76; died, April 8.

Frank L. Stallard, Geuda Springs, Kan.; Kentucky University Medical Department, Louisville, 1906; aged 52; died, April 26, of cerebral hemorrhage.

Thomas N. Austin, Genoa, Ill.; Michigan College of Medicine and Surgery, 1891; member of the Illinois State Medical Society; aged 68; died, April 3.

George Albert Ellinwood ⊕ Gray, Maine; University of Vermont College of Medicine, Burlington, 1894; aged 59; died, April 3, of heart disease.

Julius Alexander Brock, Lafayette, La.; Meharry Medical College, Nashville, Tenn., 1925; aged 33; died, March 24, in a hospital in New Orleans.

Edward G. Colton, Easthampton, Mass.; Bellevue Hospital Medical College, New York, 1868; Civil War veteran; aged 89; died, April 24.

Charles Samuel Mack, La Porte, Ind.; Medical Department of Columbia College, New York, 1883; also a minister; aged 73; died, May 10.

Byron E. Mead, Lynbrook, N. Y.; New York Homeopathic Medical College, 1879; aged 76; died, May 4, of heart disease and pneumonia.

Elmer Clark Ritchey ⊕ Pittsburgh; Western Pennsylvania Medical College, Pittsburgh, 1897; aged 61; died, May 2, of pneumonia.

John Richard Adams, Blackstone, Va.; Medical College of Virginia, Richmond, 1869; aged 83; died, April 22, of mitral insufficiency.

William Peabody Defriez, Brookline, Mass.; Boston University School of Medicine, 1881; aged 72; died, April 23, of tuberculosis.

George B. Masters ⊕ Macdonaldton, Pa.; Medical College of Ohio, Cincinnati, 1879; aged 74; died, April 10, of pneumonia.

Charles Taylor Smith, Columbus, Ohio; Meharry Medical College, Nashville, Tenn., 1895; aged 63; died, May 1, of pneumonia.

Owen Smith ⊕ High Point, N. C.; Jefferson Medical College of Philadelphia, 1904; aged 49; died, April 26, of pneumonia.

Rufus R. Winston, Paducah, Ky.; University of Louisville School of Medicine, 1877; aged 72; died, April 28, of chronic nephritis.

George Clinton, Belleville, Ont., Canada; Queen's University Faculty of Medicine, Kingston, 1878; aged 77; died, April 4.

Peter Francis McCue, Walkerton, Ont., Canada; University of Toronto Faculty of Medicine, 1903; aged 51; died, April 4.

Austin H. McFadden, Cooksville, Ont., Canada; University of Toronto Faculty of Medicine, 1904; aged 48; died, April 7.

W. S. Gilmer, Kingsport, Tenn.; Medical College of Virginia, Richmond, 1869; aged 82; died, April 2, of arteriosclerosis.

Samuel J. Porter, Vale, Ky. (licensed, Kentucky, 1900); aged 74; died, April 4, in the Stephenson Hospital, Ashland.

Raymond Joseph O'Neill, Brooklyn; Long Island College Hospital, Brooklyn, 1926; aged 30; died, May 12, of pneumonia.

Hirsch Wolf Honor, New York; University of Kharkov, Russia, 1889; aged 69; died, April 23, of pneumonia.

Angus Nichol, Stratford, Ont., Canada; Victoria University Medical Department, 1872; aged 85; died, April 7.

James Grant, Bracebridge, Ont., Canada; University of Toronto Faculty of Medicine, 1897; died, March 3.

Bureau of Investigation

TILTON CANCER CURE

Another Variant of the Old Escharotic Treatment

Lester Tilton, originally from Clinton, Iowa, more recently of Chicago, has for many years been exploiting an alleged cure for cancer. For some years Tilton had a quack "institute" in Clinton, Iowa, treating, at different times, cancer, tuberculosis and syphilis. His letterheads carried the description: "Tilton Cancer and Blood Poison Treatment." Tilton has no medical nor pharmaceutical training.

In 1923 Tilton advertised his business as the "Tilton Laboratories," with Lester Tilton as "Business Manager" and Dr. R. G. Timms as "Director." Reputable physicians in Clinton, Iowa, have stated for some years that the chief ingredient in Tilton's so-called treatment was peat, said to be obtained from some local peat beds. Apparently, the peat is carbonized and, in fact, in 1925, when Tilton branched out into the tuberculosis field, he seems to have called his remedy the "Retort Treatment."

One of the earliest records that the American Medical Association has of Tilton's activities is a letter from the Visiting Nurse Association of Chicago, which in 1921 called to the attention of the Bureau of Investigation the case of a poor woman who first tried Christian Science while the cancer from which she suffered was in an early stage and later used Tilton's "cure," until the inevitable occurred.

When THE JOURNAL first published on the "Hoxide Cancer Cure" fake (January 2, 1926), attention was called to the fact that L. O. V. Everhard and Bruce Miller, who had for a time been associated with Hoxsey, left the latter and went with Tilton. Both the Hoxsey and the Tilton nostrums are escharotics, the former remedy having arsenic for its essential ingredient while the latter contains a zinc salt. The Everhard-Miller-Tilton "United Cancer Institute," that was opened in Chicago in 1925, continued in existence but a short time.

After this not much was heard about Tilton for a few years except occasional inquiries from physicians whose cancer patients were considering the Tilton "treatment." A typical inquiry, a telegram received in October, 1927, from a Pennsylvania physician, read:

"Have you anything definite on Tilton Laboratories, Clinton, Iowa, cancer cure? This fake wants one hundred dollars from poor patient it has promised to cure."

Then, in 1929, THE JOURNAL began receiving letters from physicians, of which the following, from a medical man in Iowa, is typical:

"The writer is a fellow of the American Medical Association. I am desirous of obtaining information concerning Dr. Lester Tilton, making headquarters in a Chicago hotel. This man does not claim to be an M.D., but a chemist, and is posing as a cancer specialist. I understand that he claims that he is working in conjunction with a committee on cancer of the Northwestern University Medical Department. The claim is made that he has made many cures, carcinoma and sarcoma. One of these cases, supposedly a cure, is from this city and the man himself has been making quite a stir among people supposedly afflicted with malignant disease."

In order to determine how much truth there was in the claim being made by Tilton, that his remedy was being "tested" by the Northwestern University Medical School, a letter was written to Dr. Irving S. Cutter, Dean of the institution, asking for the facts in the case. Dr. Cutter explained that early in 1929 a wealthy individual, living near Chicago, had become interested in Tilton and his claims and had instructed his attorney to draw up a trust deed giving Tilton a large sum of money for the furtherance of clinical work among persons afflicted with cancer. The attorney (a man of obvious intelligence), feeling that Tilton's claims might be unsound, requested his client to delay action until such claims could be investigated. The attorney suggested that the School of Medicine at Northwestern University might be persuaded to look into the matter, and a conference was held between the principal, the attorney and representatives of Northwestern University. As a result, it was agreed that in the interests of the public and to the end that a large sum of money should not be devoted to the furtherance of what would appear to be quackery, an investigation was warranted and justified.

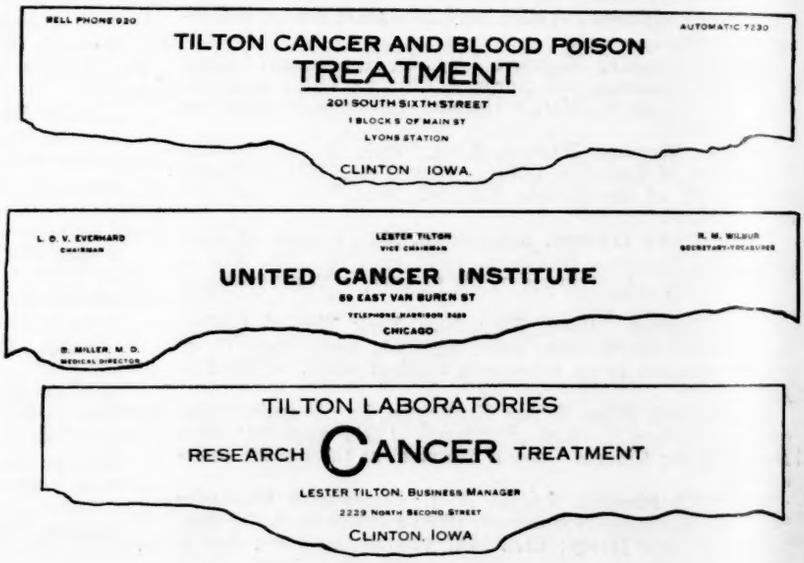
Following this a committee was appointed from the faculty of Northwestern University Medical School, to interview Tilton and look into his claims. The committee comprised Dr. John A. Wolfer, Associate Professor of Surgery; Dr. H. M. Hedge, Associate in Dermatology; Dr. Arthur E. Mahle, Associate in Medicine, and Dr. J. P. Simonds, Professor of Pathology. This committee worked for many months and the course and results of Tilton's "treatment" were carefully observed and recorded. Finally, in March, 1930, the committee issued its report on the Tilton product. The report declared that a series of cases had been carefully studied from the viewpoint of:

1.—The diagnosis of malignancy—either carcinoma or sarcoma.

2.—Any associated disease or diseases complicating the malignancy.

3.—The treatment of the malignant process prior to the appearance of the case before the committee.

4.—The results of the Tilton treatment as carried out by and under the immediate instruction of Tilton.



The cases dealt with in the report were divided into four groups, as follows:

Group I.—Those cases offered to the committee by Tilton, the same being acceptable to the committee.

Group II.—Those cases submitted by the committee and accepted by Tilton for treatment.

Group III.—Those cases submitted by the committee and refused by Tilton because of reasons stated in case reports.

Group IV.—Those cases treated by the committee (with the Tilton remedy) but not seen by Tilton.

The report, which is too long to incorporate in this article, gave a description of individual cases by groups. At the end of the report there was published an analysis of the case abstracts which may be paraphrased as follows:

Group I.—This comprised seven patients supplied by Tilton as test cases. Of these the committee reports that four have died, one is practically moribund, one was operated upon for cancer of the breast with axillary metastasis about nine months after both the patient and the committee had been assured by Tilton that she was cured! The seventh individual in this group is free from disease, but the committee points out that this patient was free from demonstrable carcinoma at the time Tilton began treatment.

Group II.—There were four cases in this group of patients. They were presented by the committee and accepted by Tilton

for treatment. Of these four, three are dead and one, on the day Tilton pronounced the case cured, was shown on biopsy to still have cancer.

Group III.—These comprised five patients. Two of the patients with superficial carcinoma were refused treatment by Tilton, on the grounds that they had had radiation (x-ray and radium). The committee directs attention to the fact that six out of seven of Tilton's own private cases had received radiation. Two other patients of this same group were also refused treatment by Tilton because they had positive Wassermann reactions. The fifth patient Tilton refused to treat because he claimed that the tumor was a sarcoma, with bone involvement likely. As a matter of fact, it was a carcinoma of the left parotid gland.

Group IV.—There was only one patient in this group, a woman with carcinoma of the breast with metastasis. She was treated by the committee with the Tilton remedy but was not seen by Tilton. Treatment was begun in June, 1929, and continued until her death in September, 1929.

The committee, in summing up its report, states:

"To date, of the twelve cases treated, eight have died, one is moribund, two have cancer clinically and microscopically, and one is free from demonstrable disease (as she was when the Tilton treatment was begun)."

As has been previously stated, the essential part of the Tilton remedy is an escharotic. Various specimens of this, analyzed in the A. M. A. Chemical Laboratory, have disclosed the presence of quantities of zinc chloride. There are also supplementary nostrums that are used in connection with the treatment, in which ammonium carbonate seems to be the most important ingredient.

Tilton, according to the latest information, has C. Judson Spruce, M.D., of Chicago connected with him. Tilton himself, having apparently concluded that the Chicago field for his brand of quackery is becoming less and less profitable, is now actively working the Detroit area. He thus comes in direct competition with Detroit's own "cancer curer," William F. Koch.

Tilton's quackery would hold comparatively little menace, were it not for the fact that the man seems to have been able to interest people in the business and religious world who are of some importance. A physician, who until recently was connected with Tilton in his Chicago activities, states that one J. Madison Pace is the business manager of the so-called Tilton Cancer Clinic established at the Great Northern Hotel, Chicago. Pace seems to have been a promoter for some years and to have been engaged in various enterprises. Various reports have come to the American Medical Association to the effect that the Tilton "cure" has been used and is being recommended by certain religious organizations. In one instance, a man of more than average intelligence is said to have been persuaded to try the treatment, after getting a report from such a source. The patient in question is reported to have said:

"I went to some of the nuns of the Mercy Order, who are well known to me, and learned from several of them and from the Superior that about twenty nuns in their Order had been treated by this paste and that in nineteen out of the twenty, there had been a cure. Considering this reliable information, I thought it worth while taking a chance, though I do not often fall for this sort of thing."

As a result, this man went to the great Northern Hotel in Chicago and for two or three weeks is reported to have had the Tilton paste applied to the tumor. During the time, the patient suffered a great deal of pain, became anemic and so weak that he had to give up the treatment. Somewhat similar evidence came from Milwaukee some weeks ago; a physician connected with a religious institution wrote that Tilton was using some kind of escharotic paste and exploiting a so-called cancer cure quite widely in a community of nuns near that city.

Just how long the Tilton quackery will last, or at least how long it will continue to be a serious menace, will depend largely on the length of time that reputable and well-meaning people, who are totally unqualified to pass on the value of a product of this sort, continue to lend their influence to Tilton and his "cure."

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

TREATMENT OF WASSERMANN-FAST SYPHILIS

To the Editor:—What is to be done in a case such as the following: A boy about 14 years old, with the Wassermann reaction four plus, has had six intravenous injections of neoarsphenamine, 0.3 Gm., and one mercury treatment every day. His reaction is still four plus. Another patient, a man of about 40, with the Wassermann reaction four plus, has had a series of seven intravenous injections of neoarsphenamine, 0.6 Gm., at weekly intervals, and mercury treatment. The Wassermann reaction at present is still four plus. Why are there no apparent results from the neoarsphenamine? What further treatment should be given in these two cases? I wish to thank you in advance for your kind information. Please do not publish my name.

M.D., Wisconsin.

ANSWER.—In old cases of syphilis, that is, cases of syphilis in which infection has existed for several years, such as these are, it is not unusual—it is rather the rule—for the Wassermann reaction to remain positive after all symptoms have disappeared; indeed, to remain positive in spite of vigorous treatment to reverse it, and to revert to positive, if by treatment it is rendered negative. There are two schools of opinion concerning the course to be pursued in these cases. The members of one would make persistent efforts to render the Wassermann reaction negative; the other, in a symptom-free patient, would be content to leave the Wassermann reaction positive after moderate effort to reverse it has been made. The reasons for this are that experience shows that many of these cases cannot be made negative; if they are made negative they are almost sure to revert to positive; and damage may be done in overvigorous efforts at treatment without compensating effect on the syphilis. The patients should be treated as individuals; they should be given sufficiently vigorous treatment, as apparently has been done in these cases, to get them free from clinical evidences of syphilis and then should be watched as individuals rather than as cases of syphilis. If they remain symptom free and well they should be left alone, or perhaps given moderate courses of mercury and iodide at intervals of four or five months. If they develop symptoms—a highly unlikely contingency—further treatment may be given as the situation demands.

EKA SALT AND THE SALT FREE DIET

To the Editor:—Will you please advise me whether "Eka Salt," put up by Sharp and Dohme, can be used with safety in cases of nephritis and hypertension, or in such cases in which patients are on a salt free diet.

M.D., Kansas.

ANSWER.—Eka salt (claimed to contain sodium malate as its essential constituent) is offered as a means of giving the same flavor as common table salt without making it necessary for the body to deal with the ten or fifteen grams of sodium chloride that would ordinarily be taken. Since no one knows whether the sodium or the chlorine is responsible for any of the untoward effects attributed to sodium chloride, it would not be proper to include Eka salt in a diet that is intended to be strictly salt free. Since there is no well established evidence that moderate amounts of sodium chloride are harmful in nephritis and hypertension, it may be that mixtures like Eka salt may be used with safety although the value of such use in the treatment of patients with either or both of those two conditions has also not been fully established.

TREATMENT OF ANGIOMA WITH GAMMA RAYS

To the Editor:—A young man has had an angioma of the face since birth. When he was 16 years of age it was cauterized with the thermocautery. This treatment was only superficial because the angioma became larger and larger and finally involved the entire cheek. When he was 23 years old radium treatment was begun, at first with all the rays (alpha, beta and gamma) and then with filtered rays. The nonfiltered rays gave a good result, destroying the greater part of the angioma, but destroying also the other tissues of the skin and leaving a scar on the entire cheek. Treatment with filtered rays (six or eight successive applications in one year) gave only minimal results. Now the angioma is still present, especially deep in the cheek. What can be done in the way of abortive treatment of the angioma and then what can be done to make the scar disappear?

M.D., Greece.

ANSWER.—A deep seated hemangioma is best treated with the gamma rays only. A sufficient amount should prevent further growth and also reduce the tumor already present. We do not know of any means to make the scar disappear.

ERYTHROMELALGIA OR ACROPARESTHESIA

To the Editor:—Will you give me the probable diagnosis and treatment for the following symptoms: Mrs. T., aged 44, complains of pain in the three middle toes of both feet. She had a similar trouble nineteen years ago which lasted six months. Two years ago she had a similar condition in both hands. It lasted all one winter, or about six months. The pain was severe, the hands becoming red and swollen, with an intense burning. She thinks that this trouble might have been due to an unusual amount of piano playing that winter. The present trouble began four or five years ago. The pain at first was present one day out of each week, but the interval has decreased so that at present she has it every day. The pain usually begins about noon or after the noon meal and increases during the day and is worse toward evening. She feels comfortable in the forenoon. She is sure the pain is worse when she is on her feet, and going upstairs makes it worse. When the pain is at its worst she has to sit down to get relief. The toes never become cyanotic or white. The color remains normal. Ulcers have not formed and the condition is the same in the summer as in the winter. There is no flatfoot, and changing shoes and wearing arch supports do not help. Some days the three middle toes of one foot are affected and the pain is absent in the toes of the other foot. The big toe and the little toe of each foot are not involved. Physical examination is otherwise negative. Pulsation is present in the dorsalis pedis. Examiflation of the toes is negative.

A. W. PATTERSON, M.D., Fonda, Iowa.

ANSWER.—This is a circulatory disturbance of the extremities, and the fact that it has affected the hands and feet in a symmetrical manner suggests Raynaud's disease. The conditions that come to mind first are acroparesthesia and erythromelalgia. The disturbance may be caused by a circulatory change, which may be of neurogenic origin, or toxic in nature.

The treatment may be divided as follows:

1. Symptomatic treatment should be begun.
2. Tonic treatment should be taken up: arsenic and iodides, phosphorus and strychnine being used.
3. Locally, felt, to support the longitudinal and transverse arches, should be given a trial. This form of support is resilient instead of rigid. Special exercises for the supporting structures of the longitudinal and transverse arch are also indicated. Gentle massage with an anodyne ointment consisting of equal parts of an anodyne ointment, such as Compound Menthol Inunction, N. F., and ointment of rose water may be of value. Contrast sprays, i. e., sitting in the bathtub and spraying the feet alternately for a minute with warm water and a half minute with cool water for eight to ten minutes twice daily, should be tried. Elevation of the feet for a period of from fifteen to forty-five minutes in the morning and afternoon would be of value. Leg exercises while in the recumbent position are helpful.
4. Intravenous use of any of the protein substances that produce a fever reaction is at times beneficial.
5. Finally, the question of sympathetic nerve operation should be considered.

SCARLET FEVER ANTITOXIN

To the Editor:—I am writing to you for information in regard to quarantine in case of scarlet fever when antitoxin is given and when it is not given. What should be the minimum period of quarantine when antitoxin is used and when it is not used? What is the opinion of the best authorities on the use of antitoxin?

B. B. REEVE, M.D., Whiting, Ind.

ANSWER.—At the present time the period of quarantine in cases of scarlet fever is the same no matter whether antitoxin is given or not. So far as known, no state has reduced the period of quarantine for cases in which antitoxin has been given. The infectivity of scarlet fever convalescents depends on whether or not the streptococcus of scarlet fever is present in the throat, nose or ears. It has not been established that the administration of antitoxin in the early stages of the attack definitely shortens the time that the streptococci remain in the throat and elsewhere.

There is no doubt in the minds of careful observers that the use of potent antitoxic serum in the early stages of scarlet fever cuts short the active symptoms.

BLOOD-SUGAR DETERMINATION

To the Editor:—Would you kindly inform me as to the accuracy of Dr. Epstein's microsaccharimeter (Leitz) for blood sugar determination as compared with the standard Folin test. Kindly omit name.

M.D., New York.

ANSWER.—A reply to a similar inquiry was given in THE JOURNAL, Nov. 23, 1929, page 1673. The Epstein micro method will furnish results sufficiently accurate for clinical purposes, if properly carried out. As a rule, however, results are more satisfactory when a standard colorimeter is used. The instrument is then available for other tests. An improved form of Folin's new micro method has recently been described by Folin and Malmros (*J. Biol. Chem.* **83**:115 [July] 1929). This method is quite satisfactory and takes only 0.1 cc. of blood; the Epstein method requires 0.2 cc.

"PRECAUTIONS IN PREVENTION OF PNEUMONIA"

To the Editor:—In the February 8 issue of THE JOURNAL there is a query by Dr. Arthur Pearman of Rockford, Ill., regarding precautions in the prevention of pneumonia. The answer states that the procedure described by Dr. Pearman does not strike one as at all more elaborate than indicated. It states that pneumonia is an infectious disease. The same thought has often come to me: Why all the precautions in regard to pneumonia cases? True, it is an infectious disease; but infectious diseases are not all contagious. I should like to ask the doctor who answered the query if he can recall one instance in which either a physician or a nurse ever contracted pneumonia as the result of attending such a case. I have never seen such a case develop. I entirely agree with the doctor asking the question. It seems to me that there has been and is too much stress and ado made over pneumonia cases, so far as isolation and quarantine are concerned. If there had ever been any statistics to show that physicians or nurses had contracted the disease while attending a case of pneumonia, I too would be in accord; however, I doubt whether any such cases can be cited. I served my internship in Philadelphia in the Penn Hospital under Dr. Thomas McCrae, a former associate of Dr. William Osler. We did not take extra precautions regarding our pneumonia cases. In our large wards they were placed along with our other cases. I never knew of any physician, nurse or other patient contracting the disease while in contact with these cases. I should like to hear further from the doctor answering the query from the Rockford physician.

J. W. LANE, M.D., Kenosha, Wis.

ANSWER.—Pneumonia is a frequent cause of death of physicians. In the March 29 issue of THE JOURNAL, thirty-two deaths of physicians are lisited; of these, seven were due to pneumonia and three occurred in persons under 50 years of age. Pneumonia is an infectious disease; the infecting agent passes from the sick, the convalescent and carriers to other persons, and to deny the possibility of physicians becoming infected from patients is simply absurd. Nurses no doubt escape on account of resistance to pneumonia at their age, but they may, especially if careless, convey virulent pneumococci to others.

It is the duty of physicians to take reasonable precautions against the spread of virulent pneumococci from pneumonia patients as well as against bringing new infections to pneumonia patients. Safety first always! The physician, the nurse, the visitor must protect themselves against infection and against carrying infection to others either as pure mechanical conveyors (clothing, hands, easily contaminated) or as carriers of pneumococci in the throat and respiratory tract. And the patient must be protected against secondary infections with streptococci and other germs that may be brought to him by other persons. This is an important consideration. Pneumonia patients are susceptible to secondary infections. So-called relapses or second attacks of pneumonia may be due to infection with a different type of pneumococcus from the one that caused the original attack, as may easily happen when pneumonia patients are treated side by side and careful precautions are not taken. The procedure required in the Rockford hospital is reasonable, well founded and timely, and should be followed conscientiously.

JARVIS SYNDROME AND TINNITUS

To the Editor:—I have been put on the program of our state society to discuss a paper on a discussion of the Jarvis syndrome. The subject is one of the importance of the conditions in the nose and throat in cases of deficient diet or, rather, deficient vitamins in the diet. If you can send me anything on this subject I shall greatly appreciate it.

R. H. COWLEY, M.D., Berea, Ky.

ANSWER.—Dr. Jarvis of Barre, Vt., conducted extensive research on the effect of the inhalation of silica among stone workers. He found that an increase in lymphoid tissue in the chest is often present and that certain ear conditions, such as tinnitus, often occurred in those cases in which there were changes in the middle and inner ear. His observations showed him that the use of oil rich in vitamin A caused a diminution in the lymphoid tissue and improved and diminished the noises in the ear. At the same time the hearing for the lower pitched tones also seemed to be improved. A number of years ago, it was claimed that the noises present in cases of otosclerosis were relieved by taking cod liver oil, which is rich in vitamin A. While a deficiency diet, that is to say, one that is deficient in certain vitamins, causes marked changes in the bone and in the lymphoid tissue, it has been difficult for many other observers to obtain the excellent results of Jarvis and others in the way of improvement of hearing and diminution in the noises. It is important indeed to see that the individual has a well balanced diet rich in the various vitamins that are essential to body growth and health.

NERVOUS COMPLICATIONS IN DIABETES

To the Editor:—A white youth, aged 19 years, has had diabetes mellitus for about four years. He is on a diet of 2,320 calories, divided into protein, 75 Gm.; carbohydrate, 100 Gm.; fat, 180 Gm. From the beginning he has taken insulin and at present requires from 70 to 80 units to keep the urine sugar free. His blood sugar oscillates between 150 and 240 mg. per hundred cubic centimeters of blood. The patient is in excellent physical condition except that during the last two years he has become so nervous that he has had to give up his work. His hands shake when writing and he becomes frightened and nervous when strangers speak to him. I would appreciate it if you would give me your opinion as to the possible cause of this nervous condition and any suggestion for its treatment. Bromides, phenobarbital and other sedatives have had no beneficial effects.

JENARO SUÁREZ, M.D., Santurce, P. R.

ANSWER.—The complication that has arisen suggests the onset of a condition other than diabetes. One of the likely causes of this condition is, of course, the thyroid. Two other possibilities occur: the onset of some mental condition, and, although this does not seem likely, the possibility that he is having hypoglycemic reactions following the insulin injections. The blood sugar then should be investigated thirty and sixty minutes after insulin has been given. Basal metabolism would determine any possible hyperthyroidism. Treatment would naturally follow if any of these suggestions prove to be correct.

METHODS OF FAVORING BILE DRAINAGE

To the Editor:—I find the following prescription, in Sajous's cyclopedia, for catarrhal cholangeitis with or without the formation of concretions:

Phenolphthalein	⅓ grain
Acid sodium oleate	1 grain
Salicylic acid, pure	1½ grains
Menthol	1 grain

To make one pill.

Please let me know how you consider this prescription, or what you would advise for a woman 60 years of age not an operative risk with stones and catarrh of the gallbladder with constant gastric symptoms. Please omit name.

M.D., Massachusetts.

ANSWER.—This is an attempt to combine the experimentally demonstrated stimulants to bile secretion (salicylic acid and menthol) with the bile expelling effect of fatty acid (quantity probably entirely inadequate) and the laxative action of phenolphthalein. This combination aims to meet in its own way the chief indication for drainage of the gallbladder. The Karlsbad treatment, consisting of the ingestion of hot alkaline laxative mineral water, is another way of aiming at the same result, which has centuries of favorable experience in its favor as compared with the mere theoretical considerations and limited clinical application of such combinations as that here given. Either the natural or the artificial Karlsbad salt (N. F.) may be taken by the teaspoonful to a tumblerful of hot water half an hour before the larger meals. Water has a tendency to increase the flow of bile, alkaline saline to increase and thin mucous secretion, and the stimulation of intestinal peristalsis by laxative effect has also a tendency to increase the excretion of bile. Frequent meals—three small meals, such as milk or buttermilk, in addition to the three larger meals of the day—also favor bile drainage, as each meal is likely to be followed by an evacuation of the gallbladder. The diet should be laxative, containing plenty of fruit and vegetables, rather soft and easily digested, and not rich in fats. Exercise up to the patient's capacity, a supporting belt if there is ptosis, and reduction treatment if there is obesity, all help in the direction of favoring normal bile drainage. Proprietary preparations, essentially similar in composition, had much vogue some twenty years ago, but one hears little of them now.

RESPIRATORY IRRITATIONS AMONG WORKERS WITH SHELLAC, PAINT OR ENAMEL

To the Editor:—I have a patient who has had repeated attacks of bronchitis, not asthmatic in character, who attributes his condition to using a spray for applying paint, enamel and shellac in a furniture factory. He states that when he is off and goes back to work he gets a recurrence of this. I am interested in knowing whether there are any records of such irritation from shellac, paint or enamel, or if this is industrial in character.

W. E. BANNEN, M.D., LaCrosse, Wis.

ANSWER.—Among the scores of solvents, thinners and diluents for paints, enamels, lacquers and shellacs are numerous ones directly capable of causing respiratory tract inflammation. Turpentine and benzene, highly dissimilar substances, may be cited as examples. Ordinarily the inflammatory process is not limited to a bronchitis, but associated with it may be an involvement of the entire upper respiratory tract and the conjunctiva. While chemical action institutes the process, ordinary bacterial invasion aggravates the condition.

More and more, it seems sound to the industrial toxicologist to recognize that various persons become sensitive to the action of various industrial chemicals in a manner akin to protein sensitization, although skin sensitization to such action is the commonest pathologic state of this type. There are no good reasons to deny that other tissues, such as the bronchial tree, may not be so affected.

In the present instance it might be helpful to take small portions of the known constituents of the work substance and carry out skin reaction. Shellac itself is a possible source of sensitization. Here, however, the offending substance may be the protein in shellac. While no mention is made of specific ingredients of the paints, enamels and shellacs, it is highly probable that some are volatile and constitute respiratory irritants.

WATER RETENTION IN OBESITY

To the Editor:—Is there any recognized procedure which may be safely used in a rather obese patient, who, despite rigid adherence to her diet, fails to lose weight? Would this evident water retention yield to the administration of mercurial diuretics? Please omit name.

M.D., Ohio.

ANSWER.—It is not at all uncommon for obese persons not to lose weight under dietary restrictions that usually suffice. This may be due in part to water retention or it may be due to some inherent metabolic disturbance. It is generally true that such persons will react to rigid dietary changes, but sometimes it is wise to employ thyroid extract as a means of assisting the reduction process. Newburgh and his co-workers at Ann Arbor believe that water retention plays a part in the maintenance of body weight under such conditions as are described. No investigative study on the administration of a mercurial diuretic seems to have been undertaken. Any drug, cathartic or diuretic, that causes a water loss will naturally cause a corresponding weight loss. It is therefore advisable in some stubborn cases to pay particular attention to water balance, both by restriction of intake and by increase of elimination.

KETOGENIC DIET IN EPILEPSY

To the Editor:—Kindly send me some references on the ketogenic diet in the treatment of epilepsy.

M.D., Virginia.

ANSWER.—Following is a brief bibliography on the use of a ketogenic diet in the treatment of epilepsy:

Helmholz, H. F.: The Treatment of Epilepsy in Childhood: Five Years' Experience with Ketogenic Diet, THE JOURNAL, June 23, 1927, p. 2028.

Peterman, M. G.: The Ketogenic Diet, THE JOURNAL, May 5, 1928, p. 1427.

Peterman, M. G.: The Ketogenic Diet in Epilepsy, THE JOURNAL, June 27, 1925, p. 1979.

Barborka, C. J.: Ketogenic Diet Treatment of Epilepsy in Adults, THE JOURNAL, July 14, 1928, p. 73.

Talbot, F. B., and others: Epilepsy: Chemical Investigations of Rational Treatment by Production of Ketosis, *Am. J. Dis. Child.* **33:** 218 (Feb.) 1927.

Smith, W. A.: Ketogenic Diet in Treatment of Epilepsy, *Ann. Int. Med.* **2:** 1300 (June) 1929.

Lennox, W. G.: Ketogenic Diet in the Treatment of Epilepsy, *New England J. Med.* **199:** 74 (July 12) 1928.

Pulford, D. S.: Ketogenic Diets for Epileptics, *California & West. Med.* **27:** 50 (July) 1927.

Saunders, A. M. P.: Ketogenic Diet in Epilepsy, *Illinois M. J.* **56:** 355 (Nov.) 1929.

DIET AFTER ILEOSIGMOIDOSTOMY

To the Editor:—I have a patient, a girl, aged 18 years, who has had an ileosigmoidostomy performed because of extensive ulceration of the colon, which was excised. The bowels are now functioning normally and the patient is otherwise well. Will you be kind enough to outline a diet for her.

BERNARD WEISS, M.D., New York.

ANSWER.—Although the bowels are functioning normally at this time, it is advisable to put this type of patient on an anticonstipation diet; the eating of fruits and vegetables should be stressed, and a lot of water and the taking of liquid petrolatum regularly. In these cases some difficulty in expelling waste products is to be anticipated because of the absence of the propelling mechanism of the colon that was removed.

HOT SPRINGS TREATMENT FOR ARTHRITIS

To the Editor:—Will you kindly give me some information about possible benefits from the treatments at Hot Springs, Ark., for an arthritic patient. Although a cure may not be hoped for, are not many patients more comfortable for a period of time?

ANNA M. SCHRADE, M.D., Erie, Pa.

ANSWER.—Such patients often secure considerable benefit from the metabolism and elimination stimulating effect of the sweating induced by the external and internal use of these waters.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ALABAMA: Montgomery, July 8, 1930. Sec., Dr. Stuart Graves, 519 Dexter Ave., Montgomery, Ala.

ARIZONA: Phoenix, July 1-2, 1930. Sec., Dr. H. P. Mills, 14 N. Central Ave., Phoenix, Ariz.

CALIFORNIA: San Francisco, July 7-10, 1930. Sec., Dr. Charles B. Pinkham, 420 State Office Bldg., Sacramento, Calif.

COLORADO: Denver, July 1, 1930. Sec., Dr. Wm. W. Williams, 224 State Capitol Bldg., Denver.

CONNECTICUT: Regular, Hartford, July 8-9, 1930. Sec., Dr. T. P. Murdoch, 79 Elm St., Hartford, Conn. Homeo., New Haven, July 8, 1930. Sec., Dr. E. C. M. Hall, 82 Grand Ave., New Haven, Conn.

DELAWARE: Wilmington, June 10-12, 1930. Sec., Dr. H. L. Springer, 1013 Washington St., Wilmington, Del.

DISTRICT OF COLUMBIA: Washington, July 14, 1930. Sec., Dr. W. C. Fowler, District Bldg., Washington, D. C., Basic Science, June 30, 1930.

FLORIDA: Lakeland, June 16-17, 1930. Sec., Dr. Wm. M. Rowlett, P. O. Box 603, Tampa, Fla.

GEORGIA: Atlanta, June 11-13, 1930. Sec., Dr. B. T. Wise, Americus, Ga.

INDIANA: Indianapolis, June 17-20, 1930. Sec., Dr. W. R. Davidson, 413 State House, Indianapolis, Ind.

KANSAS: Kansas City, Kan., June 17, 1930. Sec., Dr. Albert S. Ross, Sabetha, Kan.

KENTUCKY: Louisville, June 10, 1930. Sec., Dr. A. T. McCormack, 532 West Main St., Louisville, Ky.

LOUISIANA: New Orleans, June 12-14, 1930. Sec., Dr. Roy B. Harrison, 1507 Hibernia Bank Bldg., New Orleans.

MAINE: Waterville, July 1-2, 1930. Sec., Dr. Adam P. Leighton, Jr., 192 State St., Portland, Me.

MARYLAND: Baltimore, June 17-20, 1930. Sec., Dr. Henry M. Fitzhugh, 1211 Cathedral St., Baltimore, Md. Homeopathic, June 17-18, 1930. Sec., Dr. J. S. Garrison, 517 Old Orchard Road, Baltimore, Md.

MASSACHUSETTS: Boston, July 8-10, 1930. Sec., Dr. Frank M. Vaughan, 144 State House, Boston.

MICHIGAN: Ann Arbor, June 10-12, 1930, and Detroit, June 16-18, 1930. Sec., Dr. F. C. Warnshuis, 1010 Maccabee Bldg., Detroit.

MINNESOTA: Minneapolis, June 17-19, 1930. Sec., Dr. E. T. Sanderson, 524 Lowry Bldg., St. Paul, Minn.

MISSISSIPPI: Jackson, June 26-27, 1930. Sec., Dr. F. J. Underwood, Jackson, Miss.

MISSOURI: St. Louis, June 11-13, 1930. Sec., Dr. James Stewart, Capitol Bldg., Jefferson City, Mo.

NEBRASKA: Omaha, June 10-12, 1930. Sec., Mr. Ernest M. Pollard, Lincoln, Neb.

NEW JERSEY: Trenton, June 16-17, 1930. Sec., Dr. Charles B. Kelley, 1101 Trenton Trust Bldg., Trenton, N. J.

NEW YORK: Albany, Buffalo, New York, Syracuse, June 23-26, 1930. Chief, Herbert J. Hamilton, Education Bldg., Albany, N. Y.

NORTH CAROLINA: Raleigh, June 16, 1930. Sec., Dr. John W. MacConnell, Davidson, N. C.

OHIO: Columbus, June 9-12, 1930. Sec., Dr. H. M. Platter, Ohio State Savings Bldg., Columbus, Ohio.

OKLAHOMA: Oklahoma City, June 10-11, 1930. Sec., Dr. J. M. Byrum, Shawnee, Okla.

OPHTHALMIC BOARD: Detroit, Mich., June 23, 1930. Sec., Dr. William H. Wilder, 122 So. Michigan Ave., Chicago, Ill.

OREGON: Portland, July 1-3, 1930. Sec., Dr. C. J. McCusker, Medical Dental Bldg., Portland, Ore.

OTOLARYNGOLOGY BOARD: Detroit, Mich., June 23, 1930. Sec., Dr. W. P. Wherry, 1500 Medical Arts Bldg., Omaha, Neb.

PENNSYLVANIA: Philadelphia and Pittsburgh, July 8-12, 1930. Supt., Mr. C. D. Koch, Harrisburg, Pa.

RHODE ISLAND: Providence, July 2-3, 1930. Dir., Mr. Lester A. Round, 319 State Office Bldg., Providence, R. I.

SOUTH CAROLINA: Columbia, June 24, 1930. Sec., Dr. A. Earle Boozer, 505 Saluda Ave., Columbia, S. C.

SOUTH DAKOTA: Deadwood, July 15, 1930. Dir., Dr. H. R. Kenaston, Bonesteel, S. D.

TENNESSEE: Memphis, Nashville and Knoxville, June 13-14, 1930. Sec., Dr. A. B. De Loach, Medical Arts Bldg., Memphis, Tenn.

TEXAS: Austin, June 17-19, 1930. Sec., Dr. T. J. Crowe, 918-919 Mercantile Bank Bldg., Dallas, Texas.

UTAH: Salt Lake City, June 26-27, 1930. Dir., Mr. S. W. Golding, 412 State Capitol Bldg., Salt Lake City, Utah.

VERMONT: Burlington, June 18-20, 1930. Sec., Dr. W. Scott Nay, Underhill, Vt.

VIRGINIA: Richmond, June 17-20, 1930. Sec., Dr. J. W. Preston, 720 Shenandoah Life Bldg., Roanoke, Va.

WASHINGTON: Seattle, July 14-15, 1930. Basic Science. Dir., Mr. Charles Maybury, Olympia, Wash. Regular, Seattle, July 14-15, 1930.

WEST VIRGINIA: Martinsburg, July 8, 1930. Sec., Dr. W. T. Henshaw, Charleston, W. Va.

WISCONSIN: Milwaukee, June 24-26, 1930. Sec., Dr. Robert E. Flynn, 315 State Bank Bldg., La Crosse, Wis. Basic Science, Milwaukee, June 23, 1930. Sec., Prof. Robert M. Bauer, Marquette Bldg., Milwaukee, Wis.

Connecticut March Examination

Dr. Thomas P. Murdock, secretary of the Medical Examining Board of Connecticut, reports the written examination held at Hartford, March 11-12, 1930. The examination covered seven subjects and included seventy questions. An average of 75 per cent was required to pass. Twenty-four candidates were examined, twenty-one of whom passed and three failed. The following colleges were represented:

PASSED		Year Grad.	Per Cent
Yale University School of Medicine	(1928) 75,	(1929)	76.5
Georgetown University School of Medicine		(1928)	80.2
George Washington University Medical School		(1929)	82.5
Northwestern University Medical School		(1928)	80.5
Rush Medical College		(1929)	*
University of Louisville School of Medicine		(1928)	76.6
University of Maryland School of Medicine		(1929)	86.2
Boston University School of Medicine		(1929)	75
Harvard University Medical School		(1928)	79.5
Tufts College Medical School		(1929)	75, 83.2
Jefferson Medical College		(1929)	82.7
University of Pennsylvania School of Med.	(1925) 75,	(1927)	86.3
Woman's Medical College of Pennsylvania		(1928)	75
Vanderbilt University School of Medicine		(1928)	77.3
University of Vermont College of Medicine		(1929)	77.5
Laval University Faculty of Medicine		(1929)	78.3
University of Montreal Faculty of Medicine		(1925)	76.1
National University of Ireland Faculty of Medicine		(1924)	83.9

FAILED		Year Grad.	Per Cent
Temple University School of Medicine		(1928)	†
University of Padua Faculty of Medicine		(1917)	‡
Osteopath			§

* This applicant received a four year certificate in June, 1929, and will receive his M.D. degree on completion of one year's internship in a hospital. His license has also been withheld until he receives his M.D. degree.

† No grade given.

‡ Verification of graduation in process.

§ Failed in medicine, parts I and II.

Book Notices

THE BACTERIOPHAGE AND ITS CLINICAL APPLICATIONS. By F. d'Herelle, Professor of Bacteriology, Yale University School of Medicine. Translated by George H. Smith, Professor of Immunology, Yale University School of Medicine. Cloth. Price, $4. Pp. 254. Springfield: Charles C. Thomas, 1930.

This is a more or less popular summary of d'Herelle's well known views, prepared for the general reader. The controversial attitude taken in the book gives it an unpleasant tone. Criticism of d'Herelle's own theories is always made the basis for a direct or flat contradiction. The term "dissociation" as used by Hadley and others is said (p. 47) to be "incorrect and decidedly misleading." The author is "astonished" (p. 87) at Bronfenbrenner's interpretation of experimental work. In attacking Bordet, he even goes so far as to write: "Needless to say, Bordet has always refrained from mentioning these experiments performed by his collaborator" (p. 69). The author, while critizing others, does not hesitate to make sweeping statements, as (p. 61) that "a mutating bacterial strain is never a normal strain" but is "a strain affected by a chronic disease due to the presence within it of some foreign parasite." The assertion that the therapeutic application of bacteriophage "forms a recognized mode of treatment" in "most of the large hospitals of the world" may be questioned by some readers. The author concludes his book with the modest remark that "the discovery of the bacteriophage was of such a nature as to cause within the biological sciences a revolution comparable to that which the discovery of the electron caused in the physical sciences."

THÉRAPEUTIQUE PHARMACOLOGIE ET MATIÈRE MÉDICALE. Par le Dr. François Arnaud, professeur honoraire à l'école de médecine de Marseille. Cloth. Price, 95 francs. Pp. 878. Paris: Masson & Cie, 1930.

This important textbook on the action and uses of drugs is the result of thirty years of experience as practitioner of medicine, hospital physician and teacher, which has shown the author how much the study of therapeutics is neglected by medical students and young practitioners and how poorly trained they are in this essential of medicine. It seems that in France also, as the author complains, the students' time is so absorbed in laboratory work that the treatment of disease barely becomes a vague accessory science alongside hygiene and legal medicine. Evidently here is an international scandal. In accordance with the author's purpose, a therapeutic classification is adhered to throughout. Following a chapter on general therapeutic principles, Arnaud takes up in succession "modifiers of infection," "modifiers" of the nervous system, the circulation, secretion and nutrition. Instead of starting with the recounting of the effect of the drug on the frog, the rabbit and the dog as is now the vogue with so many of our books on the subject that follow the trend of the German school, the author concentrates attention on what is known about its effect on human beings. He goes into details on local action, absorption and elimination, distribution in the organism, and effect on the various organs

and systems, always with the aim of pointing out practical lessons as to use, and ends with a discussion of therapeutic indications and "rules" on administration. On the other hand, the author does not believe that a book on therapeutics should be a repertory of formulas. The practical details should be given so explicitly as to train the student in the development of his own prescription formulas. The book merits translation into English.

THE PENICILLIA. By Charles Thom, Principal Mycologist, Bureau of Chemistry and Soils, United States Department of Agriculture. Cloth. Price, $10. Pp. 644, with 99 illustrations. Baltimore: Williams & Wilkins Company, 1930.

Thom's excellent monograph on the aspergilli, which appeared in 1926, is now supplemented by an equally important treatise on the penicillia. The green molds, while not perhaps especially important in medicine, are common contaminants of laboratory cultures and are of considerable practical interest from the damage they do to foods and other articles in the household. The book is primarily taxonomic but does not altogether neglect physiologic and biochemical questions. It is appalling to note that more than 600 names have been applied to penicillia and related organisms. The industry of the author in assembling and correlating the numerous descriptions is worthy of all praise. The book is well printed and bound. The publishers' motto, "sans tache," did not serve to avoid some rather obvious typographic blunders on pages 2, 23 and 51.

LA FOLIE ET LA GUERRE DE 1914-1918. Par A. Rodiet, médecin-chef de l'Asile de Ville-Évrard, et A. Fribourg-Blanc, professeur au Val-de-Grâce. Paper. Price, 30 francs. Pp. 194, with 10 illustrations. Paris: Félix Alcan, 1930.

This represents a study of about 2,500 observations of mental disturbances arising among French troops during the late war, in an attempt to answer the questions Are there war psychoses constituting special mental diseases differing in origin and evolution from ordinary psychoses of times of peace? Does war favor the development of the usual psychoses observed in times of peace and increase their number? The first question is answered in the negative. The second question is answered in the affirmative and arguments are presented to prove that the increase in number of the usual psychoses is due to exciting causes such as emotional shocks, physical misery, wounds, contusions, infections and intoxications (especially alcohol), which are augmented by conditions of war.

PHYSIKALISCH-TECHNISCHES PRAKTIKUM FÜR MEDIZINER: EINE EINFÜHRUNG IN DIE ANWENDUNG VON MESSMETHODEN UND APPARATUREN. Von Dr. Phil. Alfred Krethlow, chem. I. Assistent am physikalischen Institut der Universität Basel. Paper. Price, 15.60 marks. Pp. 232, with 127 illustrations. Berlin: Julius Springer, 1930.

There is a decided demand for a book that teaches physics in relation to medicine and covers the subject more from a practical than from a theoretical standpoint. This book is based on experiments as conducted, and the instructions as given, in the physics laboratory for medical students. The most important forms of apparatus are explained. The microscope, ultramicroscope, spectral apparatus, polarization instruments, ultraviolet lamps, infra-red applicators, diathermy apparatus, x-ray transformers, radium preparations, and electrocardiographs are considered. The various methods of measurement are discussed, including spectral analysis, emission, electrical resistance, temperature, high voltage x-ray dosage and volumbolometry. The description of the physiologic effects of the various physical agents leads to their practical use in diagnosis and therapy. It is remarkable in what concentrated form a well selected and rather complete material is represented. It is to be regretted that the book is not translated into English, although the text and illustrations are easily understandable.

TRAVAUX DU LABORATOIRE DE THÉRAPEUTIQUE EXPÈRIMENTALE DE L'UNIVERSITE DE GENÈVE. Années 1923-1929, XII. Dirigé par B. Wiki, professeur de thérapeutique. Paper. Pp., various pagination. Geneva: Georg & Cie, 1929.

This is the twelfth volume of collected reprints from the laboratory of experimental therapeutics of the University of Geneva. It covers the experimental work done by B. Wiki and his pupils during the period of 1923-1929. It includes studies on the pharmacology of local anesthetics, of chloralose, of dicodide, dilaudide and diocaine, of phamodorm, of somniphen and of various mushrooms, and studies on the rabbit's habituation to morphine, the hypertensive effect of lecithin on blood pressure, and the curarizing effect of magnesium.

ROENTGENOGRAPHIC TECHNIQUE: A MANUAL FOR PHYSICIANS, STUDENTS, AND TECHNICIANS. By Darmon Artelle Rhinehart, A.M., M.D., Professor of Roentgenology and Applied Anatomy, School of Medicine, University of Arkansas. Cloth. Price, $5.50 net. Pp. 388, with 159 illustrations. Philadelphia: Lea & Febiger, 1930.

A perusal of this book reveals a work that measures up to the statement of its title. It is a splendid exposition of x-ray technic. The author has presented the various details without redundance and has not filled the book with unimportant matter. Old apparatus, gas tubes and similar items that today are passé have no place in this admirable book. It is clearly written and intensely practical. X-ray formulas for exposures of the various anatomic regions of the body are detailed and illustrated exceedingly well and provide technicians with information that will enable them to obtain eminently satisfactory results for the roentgenologist.

STEREOSKOPISCHER ATLAS DER ÄUSSEREN ERKRANKUNGEN DES AUGES NACH FARBIGEN PHOTOGRAPHIEN FÜR STUDIUM UND ÄRZTLICHE FORTBILDUNG MIT BEGLEITENDEM TEXT. Von Karl Wessely, Professor in München. Lieferung 1. Boards. Price, 12 marks. Pp. 6, with 10 plates. Munich: J. F. Bergmann, 1930.

The atlas is to appear in six sections, each consisting of ten colored pictures made from Agfa colored photographs. The pictures are mounted on cards which can be easily viewed with a stereoscope. On the back of the card is a short clinical description in English, French and German. Some of the illustrations in this section are excellent, but others are rather indifferent and leave much to be desired. Until all the pictures appear final judgment is withheld, for from the author's wide experience and immense clinical resources an improvement may confidently be expected in each succeeding instalment. The complete work should then prove to be a valuable aid to the teachers and students of ophthalmology.

GYNÆCOLOGY FOR NURSES AND GYNÆCOLOGICAL NURSING INCLUDING THE SUBJECTS ENUMERATED UNDER GYNÆCOLOGY AND OBSTETRICS IN THE "SYLLABUS OF LECTURES AND DEMONSTRATIONS FOR EDUCATION AND TRAINING IN GENERAL NURSING" ISSUED BY THE GENERAL NURSING COUNCIL FOR ENGLAND AND WALES. By Comyns Berkeley, M.A., M.D., M.C., Gynæcological and Obstetric Surgeon to the Middlesex Hospital Fifth edition. Cloth. Price, $2.75. Pp. 426, with 71 illustrations. New York: G. P. Putnam's Sons, 1930.

This little book, representing the substance of Comyns Berkeley's gynecologic lectures to nurses, is a splendid work. Not only will nurses find it worth while, but lecturers in gynecology may refer to it with profit when preparing their notes. The arrangement of subjects and the brief but adequate treatment of the material is commendable. The book has passed through five editions and many additions appear in the present one in accordance with the advance in diagnosis and treatment. Notable are diagnostic procedures in sterility, radiotherapy and transfusion.

ERGEBNISSE DER GESAMTEN TUBERKULOSEFORSCHUNG. Band I. Herausgegeben von H. Assmann, H. Beitzke, H. Braeuning und Stefan Engel. Paper. Price, 42 marks. Pp. 573, with 110 illustrations. Leipzig: Georg Thieme, 1930.

This is a collection of individual articles by different authors, dealing with the various fields of the study of tuberculosis. Its aim is to present to the scientific worker the most important articles in the literature of the present day in a form that will save him time and waste of effort. The authors state that their desire is to publish only such papers as appear to be fundamentally correct and incontrovertible. The subjects treated comprise articles that have already appeared in the scientific press on early diagnosis, early infiltration, tuberculosis as a social factor, protective inoculation against tuberculosis, present status of allergy problems, localization of primary foci in tuberculosis with roentgen study, and others. The papers are accompanied with extensive bibliographies. The book is of good appearance and the articles are well written.

Miscellany

ON CANCER CURES

The one encouraging sign of the present widespread discussion of an alleged cancer cure is that there seems to be developing a certain ethical sense as to the propriety of making any statement as to the supposed curative powers of any method of treatment of cancer whatsoever. During the last forty years we have seen an almost annual exploitation of "cancer cures" which have had their brief season of notoriety and public attention, and then failing, as all have failed and must fail, are passed along into the discard of oblivion. The path of progress of medical knowledge is strewn with abandoned cancer-cure wreckage of every kind and description. In a general way such cancer cures reflect the ideas of cancer etiology prevailing at the time. In the nineties of the last century and in the first decade of the present one the predominant idea as to the cause of cancer was that cancer was an infectious disease and that ultimately some specific cancer organism must be found. When found, cancer therapy would naturally resolve itself into the attempt to conquer the organism or to abrogate its action upon the body by means of antibacterial or antitoxic methods and means.

It was natural that at the outset a certain analogy between cancer and infectious disease should have been thought to exist. The origin and manner of growth of neoplasms suggested in many ways the action of a parasite; and the bacteriological stage of cancer investigation was a logical and necessary one in the attainment of the knowledge of the nature of cancer which we now possess. Every form of micro-organism known to science practically has at one time or other been regarded as a possible cancer cause: there have been cancer cocci, bacilli and spirilla figured and described; cancer yeasts and molds have had their little day of etiologic prominence; and finally various organisms regarded as protozoa have had beautiful cycles of development illustrated in minute detail. In this connection the mistaken diagnosis of cork cells as cancer parasites may be recalled. And we just missed the possibility of including roundworms and a species of *Taenia* as specific agents of tumor etiology in the form of *Spiroptera neoplastica* and *Taenia crassicollis*. Fortunately, the experimental rôle played by these verminous parasites in the production of animal neoplasms came along after the controlling part played by heredity and cancer susceptibility in the development of neoplasm had become known to us, so that no specific agency was attributed to these worms as etiologic agents of cancer.

By the end of the first decade of this century experimental animal work, together with the fuller bacteriologic and pathologic studies of neoplasm, had convinced us that cancer is not an infectious disease, that no specific living agent exists for the production of cancer, and that the part played by living organisms in the development of neoplasm is but purely that of a secondary, nonspecific extrinsic factor of irritation, which will have no effect in the production of neoplasm in any one not possessing an intrinsic cancer susceptibility or tendency. This knowledge is now generally accepted, and very few pathologists today regard the infectious theory of cancer as being any longer worthy of consideration. But still there will crop up among practitioners at large cancer cures based on an unfounded premise of cancer as an infectious process. Mistaken conceptions regarding certain infectious growths in the lower animals, particularly the so-called Rous chicken sarcoma, have been in part responsible for the persistence of such views. By many workers the chicken sarcoma is regarded as an infectious granuloma and not comparable to the true neoplasms of man. The last ditch of the infective theory for the etiology of neoplasm was that of Gye and Barnard, who invented an ingenious compromise between the infective and chemical theories of cancer etiology through the assumption of a *nonspecific living agent* and a *specific chemical* substance, both of which are essential to neoplasm production—an assumption so far fetched that it is amazing that it should have received any scientific consideration at all, and all attempts at the control of the Gye-Barnard work have been, as expected, wholly negative. There exists, therefore, today absolutely no proof that infection plays any specfic exciting cause in the production of neoplasm; hence all cancer cures based upon such an assumption of etiology may at once be dismissed as outside the realms of possibility. No specific antibodies are formed in the bodies of cancer patients, and all cancer therapy in the form of serums and vaccines becomes at once theoretically impossible and practically worthless. No hope is to be held out for any curative or preventive method to be developed along these lines. This should dispose of all the cancer cures based upon such ignorance of the actual pathologic situation; and the public should be educated as to this point, as well as the members of the profession. When once the public mind has become cognizant of the fact that cancer has no infective etiology, much will have been accomplished to prevent cancer patients from falling victims to cancer cures.

A second class of cancer therapy is based upon the equally false hopes of destroying the cancer cells within the body. In their earliest form, such cures consisted in the application of caustic applications directly to the affected part. Zinc and arsenical pastes and other forms of corrosives were used for this purpose, and many patients suffered untold agony from the ulcerating and gangrenous sloughs produced by these applications, with the result of exacerbation of the growth, rather than an inhibition. The majority of the old-fashioned quack, Indian and herb cures for cancer were of this variety. Even today one meets with patients who are suffering from the use of cures reputed to "eat out the cancer." While it is possible that certain superficial and sharply localized cancers might be destroyed by such destructive applications, such is usually not the case, and in no way can such methods be compared with those of clean surgical removal. Under the irritation of such methods, cancers usually show an increased rate of growth. Moreover, the attempt to destroy neoplasms by the injection, either into their substance or into the body itself, of various lytic substances has been tried out to no avail.

It is a well known fact that the older portions of malignant neoplasms undergo degeneration and necrosis, and that almost anything injected into the neoplasm will aid in producing such regressive changes. Moreover, the spontaneous regression of neoplastic nodules may at times be so great that the nodules may be so reduced in size as to apparently disappear. Only in the case of malignant syncytioma has the spontaneous disappearance of a metastatic nodule been known to occur, but this neoplasm arising from chronic epithelium must be considered in a class apart from the tissues and organs of the individual body. Moreover, the general effects produced by the injection of cancer-lytic material often add greatly to the tumor cachexia present, and the great majority of them only hasten the end instead of delaying it. Herein belong such substances as Coley's mixed toxins, extracts of various organs and tissues, sera and effusions from cancer patients, and various endocrinal preparations, such as the Coffey-Humber extract of adrenal cortex. It has long been known that necrosis of tissue would follow the injection of adrenal gland extracts, as, for instance, gangrene of the abdominal wall in experimental animals. Such an action has in no case been shown to be specific for cancer cells alone, and the sad fact attending the use of all such lytic substances is that only the older portions of the neoplasm are affected and die while the growth of the younger cancer cells is apparently only stimulated. At any rate, rapid increase in the growth and spread of neoplasms is often seen as a result of their use. Precisely similar is the situation attending the use of the intravenous injection of colloidal preparations of heavy metals, lead, gold, silver, copper, etc. Was no lesion learned from the Blair Bell colloidal lead fiasco! Any pathologist with only a rudimentary knowledge of general pathology should have been sure as to the ultimate failure of such a treatment, and of the falseness of the premises upon which the philosophy of this treatment was built. Why was Bell's statement as to lead being lytic for chorionic epithelium not challenged? There was absolutely no proof of such an action of lead upon the placental ectoderm, or of his interpretation of the action of lead in producing abortion. What was known of the vascular action of lead poisoning should

have been sufficient to offset these unwarranted claims as to the specific destructive action of lead upon embryonal cells. And yet so curiously unbalanced is human psychology that a noted pathologist supported Bell's claims, just as a reputable journal of medicine uttered glowing prophecies as to the important therapeutic significance of the Gye-Barnard fiasco. In such cases the conservative doubting pathologist finds himself too often in Cassandra's position, and is put down for a pessimistic prophet. His only satisfaction is that if he lives long enough he is sure to have the last laugh. But, joking aside, this is all too serious a matter for even satisfaction at having correctly prophesied. None of the carefully controlled experimental work in this line has shown the slightest specific action of any of the colloidal metallic preparations upon the cells of neoplasm. To kill all of the cancer cells by any method of chemical therapy would mean the death also of the body cells, and what is most probable is that they would die before the cancer cells, because of the greater emancipation of the latter from the general body metabolism and chemistry.

It seems certain that nothing can be hoped for in the nature of any substance that, injected into the body, will kill all the cells of the parasite neoplasm and leave undamaged the cells of its host. The world is not built upon that line. It is not pessimism which makes us declare that a cancer cure of this nature will never be found; in the very nature of things it does not and cannot exist. And, further, we may safely declare that a cancer cure as such is beyond all probability of achievement. Cancer is not simply a local disease, as is a streptococcus boil; we know now that it is primarily a disease of the entire organism, an anomaly of the individual constitution. Moreover, a local organ or tissue predisposition is also necessary for its development. The general constitutional anomaly determines whether an individual can have a cancer; the local organ predisposition determines the site of the cancer. Further, there is the external factor of irritation to be considered. We do not yet know whether this extrinsic factor can take the place of the local organ predisposition, but there appears to be some evidence to the effect that it can. The general constitutional cancer susceptibility is an inherited one, although this inheritance may manifest itself in different forms in different families. Further, the members of a family possessing the cancer susceptibility do not all possess the same degree of strength of the cancer predisposition; in some the cancer may appear early and without the operation of the extrinsic factor; in other members of the same family the cancer susceptibility may not show itself until very late in life, or be brought out only through the action of the extrinsic factor. The number of cancer deaths must be very much less than the number of individuals possessing the cancer susceptibility, as many of the latter will die of other diseases before the cancer susceptibility can assert itself.

If we can promise no specific cure for cancer, what can we do to restrict its ravages? We may attempt to breed out the intrinsic cancer susceptibility, but that will take many generations of eugenic breeding. Against the development of the local organ predisposition there is much greater ground for hope. Congenital anomalies in the Cohnheim sense of misplaced tissues may be corrected or removed, and the extrinsic factors producing chronic irritation favoring cancer development may be largely controlled or abrogated. Much can be done in this direction for the prevention of cancer development. And, in the case of its development, early diagnosis and complete and extensive surgical removal will tend to bring about more complete cures than we are seeing today. There is much room for advance along the lines of both early diagnosis and thorough removal. Conservatism as to the extent of operation in the removal of a primary cancer is the chief mistake made by surgeons in the treatment of cancer. With a better knowledge of the pathology of the different forms of neoplasm, surgeons will cease to "shell out" neoplasms or to cut too closely to the border of an infiltrating growth. From the standpoint of the pathologist, these are common errors of surgical technic. As to the curative results from x-ray and radium irradiation, these methods of treatment of malignant neoplasms have proved very disappointing. Particularly is the irradiation of the affected area after operative removal of the neoplasm now being advised against, as some workers believe that such irradiation favors the occurrence of metastases. To sum up, there is little or no chance of any specific therapeutic agent for cancer ever being found; therefore, the advertisement and exploitation of so-called cancer cures leads only to the tragic blasting of unwarranted hopes excited in the lay mind through such announcements. Would it not be much better to prevent such public calamities by the development of a strong ethical sense that would lead to the censuring of the premature announcement to laymen of all experimental work connected with cancer therapy? Such exploitation should be regarded as beyond the limits of medical ethics and of common decency.—*Annals of Internal Medicine,* May, 1930.

Medicolegal

Syphilis Fraudulently Alleged by Physician

(McBurney v. Daughety (Texas), 19 S. W. (2d) 113)

The patient consulted the physician-defendant, Feb. 19, 1924. He told her and her husband, it was alleged, that according to his diagnosis she had syphilis and that a specimen of her blood showed "positive four plus," the most malignant and dangerous form of the disease. The disease was not inherited, the physician said, but had been contracted innocently, probably from a public drinking cup. For her supposed condition, the patient was treated in the defendant's hospital until some time in March, 1924, and thereafter returned once a week for treatment, until August of the same year. At that time she was operated on for a diseased ovary, appendicitis and other troubles, by the defendant, who told her then that in performing those operations he saw no sign of syphilis. The same physician operated on her again in February, 1925, removing "the last joint of her backbone," because of infection, which she was told was due to her syphilitic condition. In September, 1925, the patient consulted a physician about her eyes, and under his direction examinations were made that disclosed that she did not have syphilis. She was examined in May, 1926, by another physician, who told her that he did not believe that she had that disease. In September or October, 1927, she was examined by still another physician, and he said that she did not have syphilis and advised that she get the original report as some mistake might have been made about it. The patient thereupon wrote to the physician-defendant in this case, who had told her in the first instance that she had syphilis, and, Dec. 17, 1927, he mailed her the report. It showed "negative," instead of "positive four plus" as had been reported.

Thereupon the patient and her husband sued, alleging that the defendant-physician knew and understood, at the time that he pretended to diagnose her case, that she did not have syphilis, but that he wilfully, falsely, wantonly and maliciously made statements, representations and a diagnosis to that effect for the purpose and with the intention of frightening the plaintiffs and causing them to pay him and his hospital exorbitant fees. The plaintiffs further alleged that, if they were in error in their allegation of fraud, then the physician-defendant had made the mistake complained of because of his gross ignorance and incompetence and because of his failure to use the required degree of care, and that such conduct was wilfully and intentionally pursued for the purpose of swindling the patient and her husband. At the conclusion of the testimony offered by the patient and her husband, the court granted a motion made on behalf of the physician-defendant for an instructed verdict, on the ground that the alleged causes of action were barred by the two year statute of limitation. Judgment was rendered in accordance with the instructed verdict, and the patient and her husband appealed to the Court of Civil Appeals of Texas.

The alleged fraud was perpetrated, Feb. 19, 1924. The petition was not filed until Feb. 9, 1928. The petition of the plaintiff and her husband alleged that they discovered for the first time, Nov. 15, 1927, that she did not have syphilis and that false and fraudulent representations had been made. Nowhere, however, did the petition allege that in the exercise of reason-

able diligence they could not have discovered the fraud sooner; nor show what impediments there were to the earlier prosecution of their claim; nor allege any specific fact, reason or excuse why they failed to discover the fraud. The petition did not allege that any continuing confidential relationship existed that prevented the discovery of the fraud, or that the physician-defendant in any manner prevented them from discovering it, within the two year period immediately preceding the filing of the petition. In Texas and in most other jurisdictions, the statute of limitations runs from the time the fraud is discovered, unless in the exercise of reasonable diligence it might have been discovered sooner. The rule is well settled in Texas that when one seeks to avoid the bar of the statute because he exercised reasonable diligence to discover fraud, he must allege the facts on which he relies, so that the court may determine from the pleadings whether, assuming such allegations to be true, he is entitled to the relief sought. It is not sufficient for the plaintiff to assert merely the conclusion that he could not have discovered the fraud by the use of reasonable diligence, but he must state the facts on which he relies, so the court may see whether they justify or support his conclusion.

In the present case, even if the pleadings were sufficient, the evidence adduced showed, as a matter of law and as found by the trial court, that the plaintiffs discovered, or by the exercise of reasonable diligence should have discovered, the fraud alleged to have been perpetrated upon them, more than two years before the filing of their suit. The undisputed evidence showed that the patient and her husband failed to exercise proper diligence and to make inquiry through the means and knowledge known to them which would have necessarily led them to the discovery of the fraud. The judgment of the trial court holding that the cause of action was barred by the two year statute of limitation was therefore affirmed.

Opinion Based on Absent Roentgenogram Inadmissible

(People v. Williams (Ill.), 169 N. E. 190)

In a prosecution for murder, a coroner's physician testified that he examined the body after death, that a roentgenogram showed that the bullet passed from the left to the right side of the body, shattering the ninth rib and the spinal cord, and that he only viewed the body and took the records from the hospital, but made no autopsy. He admitted that there was doubt as to the cause of death, but he stated that in this opinion death was due to heart disease, superinduced by nephritis, an infection of the kidneys, and an inflammation of the bladder, due primarily to the cutting of the spinal cord by the gunshot wound. No objection was made to the admission of this testimony when it was offered. On cross-examination, however, when the witness admitted that he had made no postmortem examination of the body and that he got his information as to the cause of death from the records of the hospital, counsel for the defendant moved to strike out his testimony with reference to the cause of death. The court did not rule directly on the motion but said that the witness might testify as to what he saw and remembered about the roentgenogram, which was "simply a physical thing." The roentgenogram was not introduced in evidence nor in any way identified, nor did the witness qualify as an expert in the reading of roentgenograms. The defendant was convicted and thereupon appealed to the Supreme Court of Illinois.

The testimony of the coroner's physician, said the Supreme Court, when given from the records of a hospital without proof of their authenticity, was clearly inadmissible, as hearsay, and should have been stricken out. His testimony concerning matters disclosed by the roentgenogram was likewise inadmissible, because no ground had been laid for such testimony. The rule in regard to the use of roentgenograms, when it is sought to put them in evidence, requires that the witness testify either that the roentgenogram shows accurately what the witness saw by examining the body through a fluoroscope, or that the witness is skilled in the use of the roentgen machine, that he took the roentgenogram concerning which he testifies, and that he is able to say that it is accurate. It was clearly error to permit the witness to testify as to his conclusions as to what the roentgenogram showed, without proof of his qualifications and of the accuracy of the roentgenogram, and without accounting for failure to produce it. There was no proof of the cause of death, other than the testimony of this witness. As such proof rested on incompetent testimony, its admission was an error requiring the reversal of the judgment.

Ethics: Collusion Between Physician and Lawyer Justifying Disbarment.—In order to secure payment of his bills for professional services, a physician recommended personal injury cases to a lawyer. Payment in such cases was contingent on the results. This arrangement violated the ethics of the legal and medical professions and was likely to lead to false testimony as to the nature of the injuries. The lawyer was suspended from practice for two years.—*In re Burke (N. Y.), 237 N. Y. S. 53.*

Evidence: Opinion of Lay Witness as to Sanity Admissible.—The trial court indicated by its rulings that a non-expert witness might be allowed to testify that a person was of unsound mind, but that he could not testify to "the reverse." In this the court erred. Where there has been that long and intimate acquaintance with another that will enable a witness to form a correct judgment as to his mental condition, the witness may give his opinion that the person is of sound mind.—*Dobbs v. Pridgen (Ala.), 124 So. 292.*

Society Proceedings

COMING MEETINGS

American Medical Association, Detroit, June 23-27. Dr. Olin West, 535 North Dearborn Street, Chicago, Secretary.

American Association for the Study of Goiter, Seattle, July 10-12. Dr. J. R. Yung, 670 Cherry Street, Terre Haute, Ind., Secretary.

American Association of Industrial Physicians and Surgeons, Detroit, June 23-24. Dr. V. S. Cheney, Armour and Company, 43d Street and Raeine Avenue, Chicago, Secretary.

American Association of Medical Milk Commissions, Detroit, June 23-24. Dr. Harris Moak, 360 Park Place, Brooklyn, New York, Secretary.

American Dermatological Association, Cleveland, June 19-21. Dr. C. Guy Lane, 416 Marlborough Street, Boston, Secretary.

American Federation of Organizations for the Hard of Hearing, New York, June 16-19. Miss Betty C. Wright, 1601 Thirty-Fifth Street, N. W., Washington, D. C., Secretary.

American Heart Association, Detroit, June 24. Dr. I. C. Riggin, 370 Seventh Avenue, New York, Executive Secretary.

American Neurological Association, Atlantic City, June 9-11. Dr. Henry A. Riley, 117 East 72d Street, New York, Secretary.

American Pediatric Society, Montreal, June 17-19. Dr. H. C. Carpenter, 1805 Spruce Street, Philadelphia, Secretary.

American Physiotherapy Association, Detroit, June 23-24. Miss C. H. Ballard, St. Francis Hospital, San Francisco, Secretary.

American Proctologic Society, Buffalo, New York, June 22-24. Dr. Curtice Rosser, Medical Arts Building, Dallas, Texas, Secretary.

American Psychopathological Association, Atlantic City, June 11. Dr. L. E. Emerson, 370 Commonwealth Avenue, Boston, Secretary.

American Radium Society, Detroit, June 23-24. Dr. G. W. Grier, 500 Penn Avenue, Pittsburgh, Secretary.

American Society of Clinical Pathologists, Detroit, June 20-23. Dr. H. J. Corper, Metropolitan Building, Denver, Secretary.

American Therapeutic Society, Detroit, June 20-21. Dr. William J. Mallory, 1720 Connecticut Avenue, Washington, D. C., Secretary.

American Urological Association, New York, June 10-12. Dr. Alexander Randall, Medical Arts Building, Philadelphia, Secretary.

Association for Research in Ophthalmology, Detroit, June 24. Dr. Conrad Berens, 30 East 40th Street, New York, Secretary.

Association for the Study of Allergy, Detroit, June 23-24. Dr. Warren T. Vaughan, 118 East Franklin Street, Richmond, Va., Secretary.

Association for the Study of Internal Secretions, Detroit, June 23. Dr. F. M. Pottenger, Monrovia, Calif., Secretary.

Association of American Teachers of the Diseases of Children, Detroit, June 24. Dr. Ralph M. Tyson, 334 South 21st Street, Philadelphia, Secretary.

Idaho State Medical Association, Coeur d'Alene, June 27-28. Dr. Joseph N. Davis, Kimberly, Secretary.

Massachusetts Medical Society, Plymouth, June 17-18. Dr. Walter L. Burrage, 182 Walnut Street, Brookline, Secretary.

Medical Library Association, Montreal, June 24. Miss Sue Biethan, General Library, University of Michigan, Ann Arbor, Secretary.

Medical Women's National Association, Detroit, June 22-24. Dr. Elizabeth Kittredge, 3906 McKinley Street, Washington, D. C., Secretary.

Minnesota State Medical Association, Duluth, July 14-16. Dr. E. A. Meyerding, 11 West Summit Avenue, St. Paul, Secretary.

Montana, Medical Association of, Butte, June 30. Dr. E. G. Balsam, Box 88, Billings, Secretary.

New Jersey, Medical Society of, Atlantic City, June 11-14. Dr. J. B. Morrison, 66 Milford Avenue, Newark, Secretary.

Pacific Northwest Medical Association, Butte, Montana, July 1-3. Dr. Frederick Epplen, 639 Stimson Building, Seattle, Secretary.

Wyoming State Medical Society, Sheridan, July 15-16. Dr. Earl Whedon, 50 North Main Street, Sheridan, Secretary.

Current Medical Literature

AMERICAN

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Titles marked with an asterisk (*) are abstracted below.

American Heart Journal, St. Louis

5: 401-544 (April) 1930

*Importance of Differences in Potency of Digitalis in Clinical Practice. J. Wyckoff, H. Gold and J. G. Travell, New York.—p. 401.
*Complete Occlusion of Both Coronary Orifices: Two Cases. T. Leary and J. T. Wearn, Boston.—p. 412.
*Reciprocal Beating of Heart: Electrocardiographic and Pharmacologic Study. H. L. Blumgart and S. L. Gargill, Boston.—p. 424.
Mechanism of Transitions from Auriculoventricular Dissociation to S-A Rhythm: Relation to Theory of Parasystole. H. L. Blumgart and S. L. Gargill, Boston.—p. 437.
*Quantitative Aspects and Dynamics of Circulatory Mechanism in Arterial Hypertension. S. Weiss and L. B. Ellis, Boston.—p. 448.
Disappearance of Intraventricular Heart Block Occurring in Uremia Following Intravenous Injection of Hypertonic Dextrose Solution. N. S. Moore and H. J. Stewart, New York.—p. 469.
*Paroxysmal Tachycardia with Myocardial Lesions: Case. R. H. Major and H. R. Wahl, Kansas City, Kan.—p. 477.
*So-Called Interpolation of Extrasystoles During Idioventricular Rhythm. C. C. Wolferth, Philadelphia.—p. 482.
Complete Heart Block Associated with Rapid Ventricular Rate: Two Cases. B. Bloom and S. Perlow, Chicago.—p. 486.
*Standstill of Heart of Vagal Origin. A. M. Wedd, Clifton Springs, N. Y., and D. C. Wilson, Charlottesville, Va.—p. 493.
*Electrocardiographic Changes in Quiescent Rheumatic Disease in Children and Young Adults. M. J. Shapiro, Minneapolis.—p. 504.
Density of Surface Capillary Bed of Forearm in Health, in Arterial Hypertension, and in Arteriosclerosis. S. Weiss and W. R. Frazier, Boston.—p. 511.
Localized Sweating: Sympathetic Reflex Phenomenon in Angina Pectoris. R. S. Palmer, Boston.—p. 519.
Localized Sweating Replacing Cardiac Pain. E. Holt, New York.—p. 522.
Permanent Bradycardia Following Diphtheria: Case. W. D. Reid, Boston.—p. 524.

Importance of Differences in Potency of Digitalis in Clinical Practice.—An analysis of the factors involved in the application of the bio-assay of digitalis by the cat method to clinical practice is made by Wyckoff et al. Evidence is presented showing that body weight is a factor in digitalis dosage and that it is essential to take into account differences in the potency of digitalis as determined by bio-assay. It is pointed out that when small doses of digitalis are used, the value of both factors (body weight and differences in potency) may escape detection. An analysis is made of the experience of the committee for the study of digitalis in pneumonia at Bellevue Hospital with a well known commercial preparation of digitalis, the potency of which was later proved to have been incorrectly labeled by the manufacturer. This analysis shows, in the first place, that a specimen of digitalis which was found to be about twice as active as anticipated for man proved to be also twice as active by the cat method of assay; and secondly, the dangers arising from the use of digitalis, especially in large doses, when the exact potency is not known. Evidence is presented showing the confusion that arises from the use of the term "standardized digitalis" without a statement of the exact potency, because of the different standards used by the various manufacturers. The relative merits of so-called stronger and weaker preparations of digitalis are discussed.

Complete Occlusion of Both Coronary Orifices.—Two cases of essential closure of both coronary orifices are reported by Leary and Wearn. The lesions indicated a slowly progressive process which had probably taken months at least to reach the point of essentially complete closure. No evidences of fatty change, myocarditis or repair were found in the heart muscle. The only adequate explanation of the ability of these patients to live and work rests on a belief that the thebesian veins have supplied the compensatory circulation necessary for the functioning of the heart muscle.

Reciprocal Beating of Heart.—The clinical and electrocardiographic aspects of four cases of reciprocal beating of the heart are recorded by Blumgart and Gargill and the nature of the abnormal mechanism is discussed. In one case the disturbance was sufficiently prolonged to permit extensive pharmacologic study. This study indicated that reciprocal beating was influenced mainly by vagal hypertonicity.

Circulatory Mechanism in Arterial Hypertension.—A study is presented by Weiss and Ellis of the circulatory mechanism in thirty patients with hypertension. Although the average resistance of the arteriolar system of the greater circulation was twice as great in the patients as in the normal control subjects, the circulating blood volume, the cardiac output per minute, the arm to face velocity of the blood flow, and the mean velocity of the circulation were either normal or slightly below normal. Although the peripheral resistance was increased to twice normal, the estimated work of the left ventricle of the heart in hypertension was only 41 per cent greater than in normal subjects. A satisfactory explanation of the dynamics of the circulation in the patients with hypertension studied is that, because of the abnormally accentuated arteriolar resistance, a high arterial and arteriolar pressure is essential to reestablish the normal capillary blood flow and pressure in the vital organs. The measurements and observations do not bear out the hypothesis that loss of the elasticity of the great arteries, increased cardiac output, increased circulating blood volume or hypoventilation and decreased blood content of the lungs is responsible for the presence of hypertension. The relationship between cardiac output, arterial pressure, peripheral resistance and capillary circulation determines the nature of the therapeutic procedures applicable in hypertension.

Paroxysmal Tachycardia with Myocardial Lesions.—Major and Wahl have had the opportunity of studying a patient suffering from paroxysmal tachycardia of auricular origin, who died during the attack and on whom a necropsy was obtained. This patient showed at autopsy an acute and chronic myocarditis. The myocarditis was obviously infectious, and the patient's infected tonsils, which were removed approximately one year before the onset of this attack, may have been the portal of entry for the infection. It is interesting that this patient's attacks at first had a sudden onset and a sudden termination and clinically belonged definitely in the group described by Bouveret, who insisted on this criterion for diagnosis. In this last attack, however, the tachycardia did not cease suddenly but gradually, the patient's pulse coming down to normal over a period of four days. The duration of this attack was unusually long, the patient having had the condition two weeks before admission and being under observation ten days in the hospital—twenty-four days in all.

So-Called Interpolation of Extrasystoles During Idioventricular Rhythm.—An electrocardiogram obtained from a patient with complete heart block and what might be regarded as interpolated extrasystoles is presented by Wolferth. It is concluded that, thus far, there has been no proof of the occurrence of interpolated beats during idioventricular rhythm.

Standstill of Heart of Vagal Origin.—A case is described by Wedd and Wilson which exhibited permanent nodal rhythm with periods of standstill of the whole heart and of high grade bradycardia. The disappearance of these unusual disturbances of rhythm following exercise and atropine is proof of vagal origin. From a consideration of the mental and emotional make-up of the patient and of the circumstances associated with increased vagal tone, it seems certain that the primary factor was a psychic one.

Electrocardiographic Changes in Quiescent Rheumatic Disease in Children and Young Adults.—Electrocardiographic tracings were made by Shapiro in 119 children giving a history of rheumatic disease who were able to attend school regularly; tracings were also made in fifty normal children who were used as controls. Many of the tracings taken from the children in the so-called quiescent group showed changes similar to those found in acute rheumatic fever, but the changes

were found less frequently. Repeated tracings taken from children in the quiescent group showed variations similar to those found in the acute group. In the control group the tracings did not vary. The most common and most persistent finding in this quiescent group was the lack of iso-electric period between the R or S wave and the T wave and the marked variability of the R-T or S-T interval from time to time.

American Journal of Ophthalmology, Chicago

13: 379-472 (May) 1930

New Eye and Hand Method of Training Squints. E. E. Maddox, Bournemouth, England.—p. 379.
Trachoma Among Indians. W. H. Wilder, Chicago.—p. 387.
Traumatic Rupture of Choroid with Detachment of Retina: Spontaneous Reattachment. A. J. Bedell, Albany, N. Y.—p. 390.
Tonometry and Various Instruments Employed in Practice. R. I. Lloyd, New York.—p. 396.
Melanosarcoma at Limbus. J. W. McKee, Kansas City, Mo.—p. 407.
Anatomic-Surgical Approach to Optic Nerve. D. M. Velez, Mexico City. —p. 408.
Eye Observations in Tuberculous Patients at State Sanatorium, Cresson, Pennsylvania. L. P. Glover, Altoona, Pa.—p. 411.
Concentric Contraction of Visual Fields. W. D. Rowland and A. W. Rowe, Boston.—p. 413.
Cod Liver Oil in Treatment of Corneal Opacities. C. M. Stiles, Philadelphia.—p. 423.
Cystic Degeneration of Cornea and Sclera. W. A. Huber, Tulsa, Okla. —p. 424.
Intermittent Exophthalmos of One Eye. S. Sanyal, Calcutta, India.— p. 425.
Early Fifteenth Century Reference to Interesting Ocular Phenomenon. A. Brav, Philadelphia.—p. 425.

American Journal of Psychiatry, Baltimore

9: 779-1042 (March) 1930

New Statistic System of Massachusetts Department of Mental Diseases. N. A. Dayton, Boston.—p. 779.
Pathologic Changes in Region of Tuber Cinereum in Idiopathic Epilepsy. L. O. Morgan and H. S. Gregory, Chicago.—p. 805.
Delinquency: Problems in Causation of Stealing. H. M. Tiebout, New York.—p. 817.
Anatomicoclinical Observations on Myoclonus in Epileptics and Related Symptom Complexes. M. B. Hodskins and P. I. Yakovlev, Palmer, Mass.—p. 827.
Psychiatric Aspects of Crowded Living Conditions. J. S. Plant, Newark, N. J.—p. 849.
Psychopathology of Marital Maladjustment. G. K. Pratt, New York. —p. 861.
Microcephaly Following Embryonic Roentgen Irradiation: Case. E. A. Doll, Vineland, N. J., and D. P. Murphy, Philadelphia.—p. 871.

American Journal of Surgery, New York

8: 743-952 (April) 1930

Chronic Leg Ulcers: Treatment with Unna's Paste Boot. R. A. Cutting, New Orleans.—p. 743.
Surgical Aspects of Biliary Disease. R. S. Fowler, New York.—p. 750.
Treatment of Acute Appendicitis. E. T. Crossan, Philadelphia.—p. 759.
Extra-Articular Arthrodesis of Hip by Bone Graft for Tuberculosis of Hip. F. H. Albee, New York.—p. 764.
*Cuticular Suture. M. Tomaiuoli, New York.—p. 770.
Treatment of Acute Head Injuries. C. W. Rand, Los Angeles.—p. 772.
Spinal Anesthesia. F. T. Romberger, Lafayette, Ind.—p. 773.
Hypertonic Saline Solutions in Infections. K. P. Neal, Raleigh, N. C. —p. 780.
Shoulder Pain. M. Cleveland, New York.—p. 783.
Simplified Method of Traction for Finger Fractures. W. H. Robinson, Pittsburgh.—p. 791.
Clinical and Pathologic Aspects of Appendicitis. B. Portis, Chicago.— p. 793.
Surgical Importance of Occasional Communications Between Synovial Sacs of Knee and Proximal Tibiofibular Joints. C. Weeks, New York. —p. 798.
Operative Injury of Ureter: Five Cases. A. Harris, New York.—p. 801.
Tuberculosis of Vaginal Tract. W. H. Barnes, Oakland, Calif.—p. 810.
Mediastinitis Following Removal of Thyroid. F. S. Mainzer, Clearfield, Pa.—p. 817.
Foreign Bodies in Brain. L. Dretzka, Detroit.—p. 819.
Uterine Polyposis: Malignant Transformation with Pulmonary Metastases. W. T. Dannreuther, New York.—p. 824.
Rectal Adenomatous Polyp with Carcinomatous Degeneration. D. H. Bessesen, Minneapolis.—p. 829.
Fibro-Adenoma in Accessory Breast. R. J. White, Fort Worth, Texas. —p. 830.
Simple Lateral Luxation of Atlas. A. N. Foxe and L. J. Friedman, New York.—p. 831.
Osgood-Schlatter's Disease. G. H. V. Hunter, New York.—p. 833.
Vesical Neck Obstruction with Large Vesical Calculus, Bilateral Hydro-Ureters. C. G. Bandler and J. A. Hyams, New York.—p. 836.
Headache (Post-Traumatic) Relieved by Lumbar Air Insufflation: Case. H. L. Skinner, Savannah, Ga.—p. 842.
Fundamentals in Roentgenology of Colon. J. T. Case, Chicago.—p. 844.
Better Protection in Vertical Fluoroscopy. J. Belot, Paris, France.— p. 859.
Improved Uterine Radium Applicator. H. Swanberg, Quincy, Ill. —p. 862.
Importance of Urography in Interpretation of Abdominal Symptoms. C. W. Moots and J. A. H. Magoun, Toledo, Ohio.—p. 866.
Inflammation of Appendix. E. Hönck, Hamburg, Germany.—p. 872.

Cuticular Suture. — Tomaiuoli makes a mattress suture, each loop on the surface passing through a piece of rubber tubing one-fourth inch long. It is said to be of special advantage wherever the scar may show and in the flabby, pendulous abdomen of multiparas, in which there is an infallible tendency for the skin edges to overlap when sutured. The suture in question makes overlapping impossible by the use of the small pieces of rubber tubings, whose purpose is twofold: first, to prevent the silk from cutting through the skin, and second, to maintain the skin edges everted, thereby assuring a perfect alinement of the cut surfaces.

Archives of Dermatology & Syphilology, Chicago

21: 721-908 (May) 1930

*Cutaneous Manifestations of Heredity. C. M. Williams, New York.— p. 721.
Inorganic Salts of Blood in Psoriasis. J. F. Schamberg and H. Brown, Philadelphia.—p. 737.
*Absorption Rate of Bismuth Compounds. H. J. Templeton and R. Thomson, Oakland, Calif., and B. M. Rix, Philadelphia.—p. 739.
*Occurrence of Fungi in Patients with Malignant Disease. J. A. Buchanan, New York.—p. 757.
List of Cutaneous Irritants. L. F. Weber, Chicago.—p. 761.
*Hepatorecurrent Syphilis: Case Terminating in Acute Yellow Atrophy. S. S. Greenbaum, Philadelphia.—p. 771.
*Subcutaneous Cysticercosis Cellulosae in Man: Five Cases. C. Hu, O. Khaw and C. N. Frazier, Peiping, China.—p. 777.
Coccidioidal Granuloma. H. P. Jacobson, Los Angeles.—p. 790.
Cutaneous Melanoma. S. W. Becker, Chicago.—p. 818.
*Comparative Study of Kahn and Hinton Reactions. N. Nagle and J. C. Willett, St. Louis.—p. 836.
Lichen Spinulosus Following Intradermal Application of Diphtheria Toxin. S. W. Becker, Chicago.—p. 839.

Cutaneous Manifestations of Heredity. — Williams believes that a knowledge of the heredity of diseases of the skin may be of great value in dealing with patients suffering from them, who always want to know if their children will be victims of the same curse. An exact answer can seldom be given, but the more nearly complete the physician's knowledge, the greater will be his confidence in reassuring his questioner in some cases, or in explaining that though a disease belongs in the hereditary group, the chances of an individual child suffering from it may be very small.

Absorption Rate of Bismuth Compounds.—Studies have been made by Templeton et al. of the absorption rate of seventeen different brands of bismuth in man. The absorption rate of fifteen of these brands has also been determined in the experimental animal (rabbit). The results in rabbits are so at variance with the results in patients that future similar studies should be on patients, not on rabbits.

Occurrence of Fungi in Patients with Malignant Disease.—Buchanan reports that the saliva of forty-eight patients with malignant disease was positive for fungi. In only two instances was the saliva negative for fungi. The urine and saliva in all instances gave a positive reaction to the bichromate test. The test is not indicative of malignant disease but shows fermentative processes going on in the stomach and the intestine of the patient, either as a specific expression or as an associated phenomenon.

Hepatorecurrent Syphilis.—An instance is reported by Greenbaum of hepatorecurrence terminating in acute yellow atrophy in a patient who three and one-half months previously received four small intravenous injections of neoarsphenamine for secondary syphilis. Intravenous injections of sodium thiosulphate, dextrose and sodium iodide and a single intramuscular injection of bismuth did not stay the progress of the disease. The use of the slow-acting drugs, bismuth and mercury, appears inadvisable in clear cut instances of hepatorecurrence. Arsenical therapy in maximum tolerated doses is not always contraindicated in patients with syphilis who develop icterus one or more months after the last treatment. This is especially true of those whose course of treatment had been insufficient.

Subcutaneous Cysticercosis Cellulosae in Man.—Six cases of cysticercosis cellulosae, five of the subcutaneous and muscular tissues, and one of the cerebral cortex, in Chinese patients in North China are reported by Hu et al. These were collected over a period of ten years and represent an incidence of about 1 in 25,000 patients. In a series of 143 cases of intestinal teniasis, approximately 90 per cent of forty-nine differentiated cases were due to *Taenia saginata*. Of the remaining five cases in which *Taenia solium* was present, *Cysticercus cellulosae* was also harbored in two. The characteristics of the cysts when they are located in subcutaneous tissue are such as to make their identification possible by physical examination alone. They are as freely movable as a foreign body, of elastic hardness, nontender and, as a rule, multiple and more or less uniformly small, the average being about 1 cm. in diameter. Cutaneous sensitization tests performed on two of the patients with the fresh fluid from a cyst gave negative results.

Comparative Study of Kahn and Hinton Reactions.—In 748 comparative tests made by Nagle and Willett with the Kahn and Hinton methods, 363 serums were positive with the Kahn reaction and 299 were positive with the Hinton reaction. The clinical histories secured in forty-four of the seventy-four cases giving divergent serologic reactions showed the Kahn test resulting in thirty-eight positive reactions in syphilitic cases with negative Hinton reactions, and the Hinton test resulting in two positive reactions with negative Kahn reactions. The Kahn test gave three one plus reactions and the Hinton test one four plus reaction in cases not diagnosed clinically as syphilis. Hence, the Hinton test was not comparable to the Kahn test in sensitiveness and practicability.

Arch. of Physical Therapy, X-Ray, Radium, Omaha

11: 145-197 (April) 1930

Physical Therapy Indications in Gynecology. J. E. G. Waddington, Detroit.—p. 145.
*Diathermy in Pneumonia. F. B. Freeland, Portland, Ore.—p. 150.
*Diathermy and Other Physical Agents in Treatment of Pneumonia and Sequelae. A. A. Lilien, New York.—p. 155.
Seminal Vesiculitis; Treatment with Diathermy. W. S. Pugh, New York.—p. 162.
Physical Therapy in Gastro-Intestinal Disease. L. H. Levy, New York.—p. 165.
High Frequency Current in Treatment of Chronic Endocervicitis. M. N. Hyams, New York.—p. 171.
Use of Physical Therapy in Traumatic Cases. E. H. Rebhorn, Scranton, Pa.—p. 179.
Status of Roentgen Therapy. P. H. Broudo, Detroit.—p. 185.

Diathermy in Pneumonia.—It has been Freeland's experience that during the stage of congestion, diathermy gives the best results when applied intensely and at frequent intervals, from two to four times daily, a current of high heat quality being used for periods of from thirty to forty-five minutes, with large electrodes covering the chest, placed anteroposteriorly. Under this use of general chest diathermy the impending pneumonia literally melts away, the lungs promptly clear up and the fever disappears. By the application of intense diathermy during pulmonary congestion the lymph channels and capillaries surrounding the inflammatory area are dilated, vasomotor function is normalized, stasis is removed, the blood flow gradually reaches equilibrium, extravasation into surrounding tissues ceases, and the edema subsides and carries soluble toxins away with it to be destroyed. During the stage of gray hepatization and early resolution, when toxic absorption is a real danger, the affected bacteria and pus laden area should be carefully avoided and diathermy directed cautiously toward any outlying edema in relatively unaffected lobes and by a special technic as a myocardial stimulant. During delayed resolution it may again be directed to the affected area, to be diminished in intensity or perhaps discontinued should symptoms of toxic absorption appear.

Diathermy and Other Physical Agents in Treatment of Pneumonia and Sequelae.—Lilien feels that diathermy is valuable in the treatment of pneumonia. Its effects are due to the physical action of heat on the metabolic processes as well as on the action of enzymes. But, he says, diathermy is not the only therapeutic agent to rely on. General medical care is always of high importance. Diathermy, with proper technic, is indicated in all forms of pneumonia except in aspiration pneumonia, and in pneumonic complications (closed empyema, pulmonary abscess and decompensated heart). Diathermy treatment has proved a good prophylaxis against complications and appears to be of value in treating some of the postpneumonic complications (unresolved pneumonia, asthmatic bronchitis and chronic bronchitis).

Canadian Public Health Journal, Toronto

21: 157-208 (April) 1930

Preparation of Budget and Satisfactory Apportionment for City with Full-Time Health Department. F. Adams, Windsor, Ont.—p. 157.
*Preservative Effect of Chlorine Compounds in Milk. C. K. Johns, Ottawa, Ont.—p. 162.
Aspects of Industrial Nursing. M. D. MacDermot.—p. 169.
Comment on Cancer and Tuberculosis. J. Miller, Kingston.—p. 174.
Dominion Medical Service. J. W. McIntosh, East Burnaby, B. C.—p. 177.

Preservative Effect of Chlorine Compounds in Milk.—The preservative effect in milk of two hypochlorite and two chloramine products was compared by Johns with that of formaldehyde. Formaldehyde was found to be a much more effective milk preservative than any of the chlorine products studied. Equivalent concentrations of chlorine compounds and of formaldehyde vary considerably in their effect on the flavor of milk. A vertical concentration (i. e., maximum concentration not detectable by taste after eighteen hours at less than 60 F.) was established for each compound, and the influence of such critical concentration was studied. When added to freshly drawn milk which was quickly cooled, the influence of the critical concentration of each of the chlorine compounds eighteen hours later was relatively slight. When added to milk which was not promptly cooled, the effect was more noticeable; yet the bacterial count increased so greatly as to preclude any possibility of chlorine preservatives taking the place of prompt and thorough cooling. The influence of immediate cooling in prolonging the inherent germicidal action of milk is clearly shown in the final series of experiments and illustrates the loss in keeping quality which follows delay in cooling the milk.

Colorado Medicine, Denver

27: 145-172 (May) 1930

General Clinical Aspects of Syphilis. A. J. Markley, Denver.—p. 148.
Laboratory Diagnosis. P. Hillkowitz, Denver.—p. 149.
Treatment of Early Syphilis. J. B. Davis, Denver.—p. 151.
Clinical Types of Neurosyphilis. G. S. Johnson, Denver.—p. 153.
Pathology of Cardiovascular Syphilis. W. S. Dennis, Denver.—p. 155.
Syphilis of Eye. W. M. Bane, Denver.—p. 158.

Florida M. Assn. Journal, Jacksonville

16: 443-478 (April) 1930

Few Points About Foreign Bodies in Lower Air Passages: Two Cases. M. A. Lischkoff, Pensacola.—p. 443.
Sterility in Female. A. R. Haisfield, Pensacola.—p. 444.
Rickets. J. H. Fellows, Pensacola.—p. 447.
Genital Lesions. T. E. Blackshear, Pensacola.—p. 448.
Impressions and Observations Regarding Blood Pressure. C. C. Webb, Pensacola.—p. 450.
Bronchial Asthma. C. J. Heinberg, Pensacola.—p. 451.

Georgia M. Assn. Journal, Atlanta

19: 128-174 (April) 1930

Complications of Gastric Ulcer. R. H. Chaney, Augusta.—p. 128.
New Conception of Bright's Disease. J. W. Daniel, Savannah.—p. 133.
Omentopexy in Cirrhosis of Liver in Children: Case. G. Y. Massenburg, Macon.—p. 137.
Tularemia: Case. W. G. Elliott, Cuthbert.—p. 138.

Iowa State M. Soc. Journal, Des Moines

20: 149-192 (April) 1930

New State Maternity Welfare Program. E. D. Plass, Iowa City.—p. 157.
Progressive Deafness. R. M. Lapsley, Keokuk.—p. 160.
Problems in Control of Acute Infectious Diseases in Rural Districts of Iowa. B. L. Eiker, Leon.—p. 163.
Aspects of Chronic Nephritis. E. P. Scarlett, Iowa City.—p. 167.
Schilder's Disease: Case. J. W. Budd, Iowa City.—p. 171.
Alterations in Gastric Function Induced by Stimulation from Colon and Appendix. F. M. Smith, W. D. Paul and W. M. Fowler, Iowa City.—p. 172.

Johns Hopkins Hospital Bulletin, Baltimore

46: 259-306 (April) 1930

Circulatory Failure of Diphtheria: II. Carbohydrate Metabolism in Diphtheria Intoxication. F. F. Schwentker and W. W. Noel, Baltimore.—p. 259.
Resorption from Biliary Tract: Morphology and Permeability of Cystic Epithelium. W. L. Winkenwerder, Baltimore.—p. 272.
*Guanidine Base Concentration in Blood of Normal Individuals and in Patients with Liver Injury. R. Ellsworth, Baltimore.—p. 296.

Guanidine Base Concentration in Blood of Normal Individuals and in Patients with Liver Injury.—Blood guanidine determinations were made by Ellsworth on twenty-five persons without hepatic or renal disease. By the method employed, the guanidine base values varied from 0.37 to 0.58 mg. per hundred cubic centimeters of whole blood. Guanidine estimations on five patients with obstructive and hemolytic jaundice fell within the normal range. In five cases of Laënnec cirrhosis of the liver and in one of "Banti's disease," there was a moderate but definite increase in blood guanidine. In six cases of arsphenamine jaundice, there was a moderate to conspicuous increase in blood guanidine, which fell to normal during recovery. The maximum concentration of blood guanidine was higher in the severe cases than in the mild ones. In one of the severe cases, the fall of blood guanidine just preceded the clinical signs of improvement. These observations on patients with arsphenamine jaundice, in which diffuse liver injury is known to occur, and in patients with Laënnec cirrhosis of the liver, together with the observations of Minot and Cutler in dogs, indicate that diffuse liver injury is an important factor in producing an increase in blood guanidine.

Journal of Clinical Investigation, Baltimore

8: 291-484 (April 20) 1930

*Congestive Heart Failure: II. Respiratory Exchange During and After Exercise. T. R. Harrison and C. Pilcher, Nashville, Tenn.—p. 291.
Id.: III. Buffering Power of Blood and Tissues. C. Pilcher, G. Clark and T. R. Harrison, Nashville, Tenn.—p. 317.
Id.: IV. Potassium Content of Skeletal and Cardiac Muscle. T. R. Harrison, C. Pilcher and G. Ewing, Nashville, Tenn.—p. 325.
Relationships Between Plasma Specific Gravity, Plasma Protein Content and Edema in Nephritis. N. S. Moore and D. D. Van Slyke, New York.—p. 337.
Urea Excretion: VI. Comparison of Blood Urea Clearance with Certain Other Measures of Renal Function. D. D. Van Slyke, J. F. McIntosh, E. Möller, R. R. Hannon and C. Johnston, New York.—p. 357.
Icterus Neonatorum: Production of Icterus in Animals Following Prolonged Anoxemia. A. Goodbloom and R. Gottlieb, Montreal.—p. 375.
*Use of Theocalcin in Treatment of Heart Failure of Congestive Type. H. J. Stewart, New York.—p. 389.
*Liver Function in Congestive Heart Failure. N. Jolliffe, New York.—p. 419.
*Circulatory Measurements in Patients with Rheumatic Heart Disease Before and After Administration of Digitalis. S. Weiss and L. B. Ellis, Boston.—p. 435.
Circulatory Changes After Full Therapeutic Doses of Digitalis with Critical Discussion of Views on Cardiac Output. W. Dock and M. L. Tainter, San Francisco.—p. 467.

Respiratory Exchange During and After Exercise in Congestive Heart Failure.—Harrison and Pilcher conclude from their study that subjects with mitral stenosis and only slight edema may suffer primarily from inability to increase their cardiac outputs per minute. Subjects with edema and hypertensive heart disease may suffer from (*a*) a low maximum cardiac output; (*b*) impairment of oxygen utilization, so that with a given cardiac output per minute the oxygen intake is less; (*c*) diminished buffering power of the tissues. In patients who have had edema of severe degree for a long time, the limiting factor, so far as gas exchange is concerned, does not appear to be decreased oxygen intake but inability to acquire a large (normal) oxygen debt, and this discrepancy is believed to be due to impairment of tissue buffering power.

Use of Theocalcin in Treatment of Heart Failure of Congestive Type.—Sixteen patients suffering from heart failure of the congestive type were treated with theocalcin by Stewart. The drug was given by mouth in doses of from 1 to 1.5 Gm. three times a day; marked diuresis was induced in the majority of the patients. It was effective when other therapeutic agents failed and it appeared to be more effective than theophylline and theobromine sodiosalicylate. Toxic symptoms (nausea and vomiting) occurred infrequently during its administration and were transient. It appeared to be more easily tolerated than theophylline and theobromine sodiosalicylate. Diuresis usually begins during the first twenty-four hours of administration, but it may not reach a maximum until after it has been given for several days. The author states that the drug can be given as long as diuresis lasts. It may be given as long as it maintains the output of urine near the fluid intake.

Liver Function in Congestive Heart Failure.—In a series of 231 patients with congestive heart failure, Jolliffe found the frequency of clinical jaundice to be 2.1 per cent. Fifteen of the sixteen patients had some alteration in liver function. No characteristic type of liver dysfunction in chronic passive congestion was found. Three subjects showed only one abnormal response to liver function tests. Only one subject showed all four tests abnormal. No parallelism between the degree of heart failure and impairment of liver function could be noted in individual cases. Patients die showing little alteration in liver function. Patients improve showing marked functional liver impairment. Patients with marked congestive failure may not show any liver dysfunction. As a group there is, perhaps, a parallel between the changes in liver function and the degree of edema and size of the liver. Any liver dysfunction induced by an attack of chronic passive congestion is apparently not permanent. Liver dysfunction still in evidence after recovery from an attack of chronic passive congestion probably indicates an independent liver impairment.

Circulatory Measurements in Patients with Rheumatic Heart Disease Before and After Administration of Digitalis.—Repeated circulatory measurements were performed by Weiss and Ellis before and after digitalization in four patients with rheumatic heart disease. The patients were comfortable at rest, exhibited no clinical evidence of congestive failure, but showed marked reduction in their functional capacity on attempting any muscular activity. Although all the patients showed clinical improvement as a result of the administration of digitalis, the cardiac output, the velocity of blood flow, the circulating blood volume and the vital capacity of the lungs showed no significant changes. The evidence presented in this study and previous observations reported in the literature do not support the conception that the rate of blood flow is increased in circulatory failure due to rheumatic heart disease, nor that the beneficial effect of digitalis is manifested by its capacity to reduce the cardiac output.

Journal of Experimental Medicine, Baltimore

51: 675-830 (May 1) 1930

Phagocytosis of Pneumococcus by Human Whole Blood: I. Normal Phagocytic Titer and Antiphagocytic Effect of Specific Soluble Substance. H. K. Ward, Boston.—p. 675.
Id.: II. Neutralization of Antiphagocytic Action of Specific Soluble Substance by Antiserum. H. K. Ward, Boston.—p. 685.
Transmission of Yellow Fever. N. C. Davis, Bahia, Brazil.—p. 703.
Effect of Route of Immunization on Immunity Response to Pneumococcus Type I. E. G. Stillman, New York.—p. 721.
Experimental Epidemiology of Tuberculosis. M. B. Lurie, Philadelphia.—p. 729.
Id. M. B. Lurie, Philadelphia.—p. 743.
Id. M. B. Lurie, Philadelphia.—p. 753.
Id. M. B. Lurie, Philadelphia.—p. 769.
Experiments with Virus of Poliomyelitis. R. Thompson, New York.—p. 777.
Methods for Pure Culture of Certain Protozoa. R. W. Glaser and N. A. Coria, Princeton, N. J.—p. 787.
Gradient of Vascular Permeability. P. Rous, H. P. Gilding and F. Smith, New York.—p. 807.

Journal of Industrial Hygiene, Baltimore

12: 75-122 (March) 1930

Control of Silicosis Hazard in Hard Rock Industries: I. Laboratory Study of Design of Dust Control Systems for Use with Pneumatic Granite Cutting Tools. T. Hatch, P. Drinker and S. P. Choate, Boston.—p. 75.
*Comparative Action of Five and Ten Per Cent Carbon Dioxide Mixtures as Respiratory Stimulants in Carbon Monoxide Poisoning. D. P. Murphy and C. K. Drinker, Boston.—p. 92.
Quantitative Measurement of Human Efficiency Under Factory Conditions. O. S. Lovekin, Boston.—p. 99.

Carbon Dioxide Mixtures as Respiratory Stimulants in Carbon Monoxide Poisoning.—A series of twelve adult cats were subjected by Murphy and Drinker to progressive carbon monoxide poisoning until death resulted. Inhalation of 5 and 10 per cent mixtures of carbon dioxide and oxygen were permitted at various stages during the progress of the poisoning in order to determine their relative powers as respiratory stimulants. Early in the asphyxia, stimulation followed the inhalation of both mixtures. Later, the 5 per cent mixture gave no stimulation, while the 10 per cent mixture still elicited some response. At the end of the experiment, or near the death of the animal, neither of the mixtures was in any way effectual in increasing the ventilation rate. From these observations two conclusions are reached: first, that 10 per cent carbon dioxide is more effectual in the treatment of certain degrees of carbon monoxide asphyxia than is the 5 per cent mixture, and, second, that artificial respiration should be administered to patients who are breathing but who are suffering from severe grades of asphyxia. In these persons a brief period of artificial respiration will induce conditions favorable to the stimulation of breathing by the carbon dioxide in the inhalation mixtures.

Journal of Infectious Diseases, Chicago

46: 267-350 (April) 1930

Changes in Blood Dextrose and Inorganic Phosphates After Intravenous Injection of Paratyphoid B Filtrate in Depancreatized Dogs. M. L. Menten and H. A. Kipp, Pittsburgh.—p. 267.
Chemical Studies on Toxin Produced by B. Paratyphosus B (Aertrycke Type). M. L. Menten and C. G. King, Pittsburgh.—p. 275.
Viability of Organism of Rocky Mountain Spotted Fever When Frozen. A. G. King, Boston.—p. 279.
*Antigens for Precipitation Test for Syphilis. E. Weiss, Chicago.—p. 285.
Bacterial Flora in Feces of Normal Fowl. M. W. Emmel, East Lansing, Mich.—p. 293.
*Incidence of Bacteria in 400 Tonsil Cultures. H. M. Cobe, Philadelphia.—p. 298.
*Fusospirochetal Disease of Lungs Produced with Cultures from Vincent's Angina. D. T. Smith, Ray Brook, N. Y.—p. 303.
*Agglutination of Typhoid Bacilli in Serums of Patients Having Unrelated Infections. R. Gilbert and M. B. Coleman, Albany, N. Y.—p. 311.
Microbic Dissociation in Abortus-Melitensis Group. W. N. Plastridge and J. G. McAlpine, Storrs, Conn.—p. 315.
*Action of Bacteriophage and Chemical Disinfectants on Staphylococcus in Subcutaneous Injections. J. E. Walker, New Brunswick, N. J.—p. 321.
*Bacteria of Upper Respiratory Tract and Middle Ear of Albino Rats Deprived of Vitamin A. R. G. Turner, D. E. Anderson and E. R. Loew, Detroit.—p. 328.
Susceptibility of Monkeys, Goats and Small Animals to Oral Administration of Botulinum Toxin, Types B, C and D. J. B. Gunnison and K. F. Meyer, San Francisco.—p. 335.
Identity of Bacillus Subtilis. H. J. Conn, Geneva, N. Y.—p. 341.

Antigens for Precipitation Test for Syphilis.—An optimal antigen has been prepared by Weiss by extracting dried and pulverized beef heart with acetone in the ratio of 1:15 for one hour at room temperature or 37 C. The extract is then filtered, the filtrate discarded, and the moist beef heart placed in the incubator at 37 C. for one hour, or longer, until dry. To the dried beef heart, 95 per cent alcohol is added, in the ratio of 1:5. This extraction is carried out at 37 C. for three days. The extract is then filtered and the filtrate is allowed to stand at room temperature over night. This is done in order to facilitate the falling out of lipoids which are soluble in alcohol at 37 C. but not at room temperature. The extract is again filtered and 0.6 per cent cholesterol is added. This antigen is preferred to other secondary extracts because of the fact that the use of acetone in the first extractions avoids an excessive removal of suitable lipoids. The acetone soluble lipoids are useless for precipitation and represent only a fraction of those lipoids which are soluble in ether, chloroform, benzene and xylene. The secondary extracts are prepared in the same manner as the optimal antigens, except that the first extraction is carried out with a different solvent at icebox temperature. This is done in order to avoid an excessive loss of lipoids which are useful for the precipitation. The ether antigen among the secondary extracts is satisfactory and ranks next to the optimal antigen in usefulness. The plain alcoholic extract prepared from beef heart also gives satisfactory results. The ratio is 1:10 and the extraction is carried out at 37 C. for one hour. The extract is filtered, allowed to stand over night at room temperature, again filtered and 0.6 per cent cholesterol added. The acetone and ether antigens among the secondary extracts and the plain alcoholic extract have a wider specific zone than the antigens devised by Kahn. The preparation of these antigens is well defined. Variations in the results are comparatively small if mixtures of several beef hearts are always used. Complicated procedures as recommended by Kahn for the correction of his antigens appear superfluous. The antigen is equally useful in the Wassermann, the Kahn and the author's test.

Incidence of Bacteria in Four Hundred Tonsil Cultures.—In 400 tonsillar cultures examined by Cobe, staphylococci were the predominating organisms. The streptococci followed the pneumococci in predominance, with hemolytic streptococci the predominant members of the group. Three per cent of the nonhemolytic streptococci recovered were classed as *Streptococcus cardioarthritidis*. There appears to be a definite relationship between the type of organism recovered from tonsillar cultures and the age of the patient, streptococci being more common in younger patients (under 11 years of age). There was a definite seasonal difference in the organisms recovered from tonsillar cultures, *B. influenzae*, *B. mucosus-capsulatus*, and the diphtheroids all being more prevalent in the spring, and *Micrococcus catarrhalis* more prevalent in the fall.

Fusospirochetal Disease of Lungs Produced with Cultures from Vincent's Angina.—Small pieces of membrane from patients with Vincent's angina, inoculated by Smith into the groin of guinea-pigs, produced local abscesses which contained organisms identical with those in the original material. Pus from these abscesses, when introduced into the trachea of rabbits, produced a series of lesions comparable to those found in man: pneumonia, gangrene, abscesses and bronchiectasis. This indicates that these various forms of clinical disease have a common etiology in the anaerobic mixture of spirochetes, fusiform bacilli, vibrios and cocci present in Vincent's angina. Pure cultures of *Treponema microdentium*, a small fusiform bacillus, a vibrio, and an anaerobic hemolytic streptococcus were isolated from the mixture. None of these organisms alone would reproduce the disease, but a mixture of all four resulted in a typical fusospirochetal abscess in the groin of mice and guinea-pigs. Pus from these abscesses caused typical fusospirochetal lesions in the lungs of rabbits.

Agglutination of Typhoid Bacilli by Patients Having Unrelated Infections.—Observations by Gilbert and Coleman make it evident that the results of the agglutination reaction with typhoid bacilli must be interpreted in the light of clinical manifestations or of bacteriologic observations since it has been shown that agglutination may be encountered in specimens collected from patients during febrile diseases other than typhoid, even though the patients have never received typhoid vaccine nor to their knowledge have had typhoid, and that a fluctuation of the agglutination titer, considered by some as definite evidence of typhoid, may occur in cases in which this infection is quite definitely excluded.

Action of Bacteriophage and Chemical Disinfectants on Staphylococcus in Subcutaneous Injections.—Various dilutions of bacteriophage and of several chemical disinfectants were mixed by Walker with a definite quantity of staphylococci and injected intracutaneously into rabbits. The resulting lesions gave information concerning the germicidal activity of the substances and their comparative toxicity for animal tissues. The chemicals tested were mercuric chloride, phenol, formaldehyde, tincture of iodine, and chloramine. Staphylococcus bacteriophage had a much wider range of dilutions (from full strength to 1:512) over which the resulting lesions were partially suppressed without necrosis of the tissue. The nearest chemical in this respect was mercuric chloride, which could be diluted to one sixteenth of the strength causing necrosis and still partially suppress the staphylococcus lesion. The results afford theoretical support for the view that bacteriophage makes a more suitable local dressing than the chemicals for staphylococcus infections.

Bacteria of Upper Respiratory Tract and Middle Ear of Albino Rats Deprived of Vitamin A.—Turner et al. found that the pyogenic gram-negative cocci, especially chromogen 6, are encountered more frequently in the animals that show the most severe symptoms of vitamin A deficiency. It is believed that these organisms gain a pathogenic hold during the depressed state of their host resulting from vitamin A deficiency. Evidence is given that cod liver oil protects against bacterial invasion of the nasal cavities and middle ear.

Kentucky Medical Journal, Bowling Green

28: 217-266 (May) 1930

Clinical Course and Treatment of Influenza. W. J. Shelton, Mayfield. —p. 219.
Roentgen Diagnosis of Complications of Influenza. C. D. Enfield, Louisville.—p. 222.
Empyema and Influenza. E. S. Allen, Louisville.—p. 224.
Ear Complications of Influenza. J. W. Nolan, Harlan.—p. 227.
Psychoses Following Influenza. H. B. Scott, Louisville.—p. 229.
Use of Skin Grafts in Plastic Surgery. F. M. Massie, Lexington.—p. 238.
Mammary Carcinoma. S. Anderson, Louisville.—p. 255.
Importance and Clinical Significance of Basal Metabolism Studies. E. F. Horine, Louisville.—p. 261.

New England Journal of Medicine, Boston

202: 797-842 (April 24) 1930

Use of Fascial Strips in Repair of Recurrent Inguinal Hernia. E. M. Hodgkins, Boston.—p. 797.
Constipation in Children: Treatment by Use of Residue-Free Diet. R. M. Smith and H. E. Gallup, Boston.—p. 802.
Bladder Symptoms from Diverticulitis of Sigmoid. F. H. Colby, Boston. —p. 805.
Pump Test for Functional Reserve of Heart. Combined Cardiodynamometer and Accessory Blood Pressure Air Tank. A. S. Hyman, New York.—p. 807.
Chorion Carcinoma: Case. D. J. Duggan, Boston.—p. 810.
Tannic Acid Treatment of Cutaneous Burns. F. W. Bancroft, New York.—p. 811.

Ohio State Medical Journal, Columbus

26: 377-472 (May 1) 1930

Use of Controllable Spinal Anesthesia in Five Hundred Major Operations. J. L. DeCourcy, Cincinnati.—p. 397.
Streptococcic Meningitis: Recovery. H. D. Cassel, Dayton.—p. 401.
Proptosis in Sinus Disease. D. T. Vail, Jr., Cincinnati.—p. 403.
Infection of Upper Urinary Tract in Pregnancy. P. A. Jacobs and W. Rosenberg, Cleveland.—p. 408.
Poison in Shoe Industry. C. L. Ferguson, Portsmouth.—p. 410.
Renal Tuberculosis. V. C. Hunt, Rochester, Minn.—p. 411.

Philippine Islands M. Assn. Journal, Manila

10: 105-148 (March) 1930

*Status of Eclampsia in Philippines. H. Acosta-Sison and A. Baens.—p. 105.
Problems in Filipino Nutrition. F. O. Santos.—p. 121.
Acetic Acid in Treatment of Trachoma. C. D. Ayuyao.—p. 129.
Effect of Different Doses of Quinine Sulphate on Decrease in Malarial Parasites in Peripheral Blood. S. S. Bernardo.—p. 132.

Status of Eclampsia in Philippines.—According to Acosta-Sison and Baens, the incidence of eclampsia in the Philippine General Hospital among 17,661 parturients admitted during the decade 1919 to 1928 was 1.18 per cent. The incidence of eclampsia among twin pregnancies was 11.31 per cent. Primiparas were affected two and one-half times as often as multiparas. The time incidence of eclampsia in the Philippines does not correspond to its seasonal occurrence in temperate climates but is most prevalent, in order of frequency, during the months of January, May, December, March and August. Of the three varieties of eclampsia the intrapartum is the commonest, but it exceeds the antepartum by only a small margin. The antepartum has the highest mortality. Postpartum eclampsia occurs least frequently and has the lowest mortality. The commonest early symptoms noted, in order of frequency, were edema, constipation, albuminuria, raised blood pressure, headache, dizziness, and nausea and vomiting.

Public Health Reports, Washington, D. C.

45: 773-841 (April 11) 1930

Psittacosis: Rickettsia-Like Inclusions in Man and Experimental Animals. R. D. Lillie.—p. 773.
Seamen with Venereal Disease in Port of New York. A. M. Stewart. —p. 778.

45: 843-918 (April 18) 1930

Accidental Psittacosis Infection Among Personnel of Hygienic Laboratory. G. W. McCoy.—p. 843.
*New Meningococcus-Like Organism (Neisseria Flavescens N. Sp) from Epidemic Meningitis. S. E. Branham.—p. 845.
Seamen with Venereal Disease in Port of New York. A. M. Stewart. —p. 850.

New Meningococcus-Like Organism from Epidemic Meningitis.—During an epidemic of cerebrospinal meningitis in which all four of the usual types of meningococci were involved, an apparently new form was isolated by Branham from the spinal fluid in fourteen cases. In morphology this micro-organism is indistinguishable from the other members of the genus *Neisseria*. It differs from the meningococcus in pigment production, in lack of fermentative action, and in antigenic relationship. These fourteen strains form a homogeneous group culturally, biochemically and serologically. The name *Neisseria flavescens* n. sp. is proposed for this new form.

Virginia Medical Monthly, Richmond

57: 1-70 (April) 1930

Recent Advances in Internal Medicine. H. B. Mulholland, University. —p. 1.
Recent Progress in Surgery. G. P. LaRoque, Richmond.—p. 4.
Vaginal Hysterectomy: Indications and Technic. J. S. Horsley, Richmond.—p. 11.
Examination of Preschool Child. W. A. Brumfield, Farmville.—p. 18.
Observataions on Points of Interest in Dealing with Problems of Child Welfare. J. H. Hiden, Pungoteague.—p. 20.
Child Welfare: What is Being Done in Field of Child Conservation. A. T. Finch, Chase City.—p. 23.
Vagitus Uterinus. M. P. Rucker, Richmond.—p. 26.
Malignant Hypertension in Young People. D. Davis and D. Vanderhoof, Richmond.—p. 31.
Portion of Safety Pin in Right Main Bronchus: Removal: Bronchoscopy. E. G. Gill, Roanoke.—p. 33.
Pulmonary Findings in Clinical Study of Ascaris Infestation in Children. C. W. Scott, Richmond.—p. 34.
Use of and Indications for Forceps. R. P. Kelly, Lynchburg.—p. 38.
Coronary Disease. W. P. Adams, Norfolk.—p. 40.
Neuritis. R. F. Gayle, Jr., Richmond.—p. 43.
Stenosis of Pylorus with Spasm and Hypertrophy in Adults: Surgical Aspects. C. B. Morton, University.—p. 46.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British J. Actinotherapy & Physiotherapy, London

5: 1-22 (April) 1930

Fundamental Principles of Radiation Therapy. A. Eidinow.—p. 3.
Medical Uses of Rays of Four to Eight Angstrom Units. J. Saidman. —p. 4.
Pyretic Treatment of Rheumatic Conditions. C. E. Sundell.—p. 6.
Interaction of Ultraviolet and Infra-Red Rays. R. K. Brown.—p. 8.
South Africa as Climatic Resort. T. W. B. Osborn.—p. 9.
Proposed Physical Treatment Center at Bermondsey. D. M. Connan.—p. 11.
Local Treatment with Radioactive Substances. G. Singer.—p. 11.
Theoretical and Practical Observations on Springs of Luhačovice. S. Frankl.—p. 12.
Medical Review of British Spas: IX. Droitwich. M. B. Ray.—p. 13.

British J. Exper. Pathology, London

11: 64-136 (April) 1930

Effect of Irradiation on Cobra Venom and Antivenin. A. Eidinow.—p. 65.
Anaphylactic Reaction of Isolated Uterus of Rat. C. H. Kellaway.—p. 72.
Carotene and Vitamin A: Anti-Infective Action of Carotene. H. N. Green and E. Mellanby.—p. 81.
Variations in Phosphatase Activity of Blood in Disease. W. M. Roberts. —p. 90.
Vaccinal Immunity in Rabbits by Means of in Vitro Methods. S. R. Douglas and W. Smith.—p. 96.
Typhoid Agglutination After Oral Immunization. A. Pijpe and H. Dau. —p. 112.
Excretion of Insulin in Urine. R. D. Lawrence, K. Madders and H. R. Millar.—p. 117.
*Experiments on Cultivation of Vaccinia Virus. H. B. Maitland and A. W. Laing.—p. 119.
*Occurrence of Influenza Bacilli in Mouths of Normal People. A. Fleming and I. H. MacLean.—p. 127.
Electric Charge of Yellow Fever Virus. E. Hindle and G. M. Findlay. —p. 134.

Experiments on Cultivation of Vaccinia Virus.—Maitland and Laing discuss the cultivation of vaccinia virus in a medium consisting of minced hen's kidney serum and Tyrode's solution. The virus has been carried through twenty-one successive cultures. In almost all sets of cultures the virus

increased from 10 to 1,000 times or more. Comparatively little virus served to initiate growth. During cultivation the virus has maintained its ability to produce typical lesions in the skin of rabbits. Subcultures of the virus have been made after storage for 191 and 128 days. Samples have been infective when tested after storage for from five to 358 days. In view of the regularity with which cultures have been obtained, the potency of culture virus and the maintenance of its infectivity during storage, the freedom of the culture from bacterial contamination, and the small cost entailed, this or a similar method of culture suggests itself as being suitable for the production of "vaccine" on a larger scale.

Occurrence of Influenza Bacilli in Mouths of Normal Persons.—By the use of penicillin, hemoglobinophilic bacilli have been isolated by Fleming and MacLean from the gums of all of thirty healthy nurses and students, and from the tonsils and postnasal spaces of almost all of these. The majority of the strains isolated were nonhemolytic, but hemolytic strains were found in all situations. Para-influenza as well as influenza bacilli were isolated from all these situations. A bacillus agreeing in its (growth) requirements with *B. haemoglobinophilus-canis* was isolated from the gums of one individual. From the gums of six laboratory workers who were studied carefully, both influenza and para-influenza bacilli were isolated. The hemoglobinophilic bacteria isolated were variable in their cultural and morphologic characters. A type of para-influenza bacillus which was constantly found in the gums is described. From the apexes of infected teeth, hemoglobinophilic bacilli were isolated in three cases out of four. The methods of using penicillin for the isolation of influenza bacilli are described.

British Medical Journal, London

1: 677-726 (April 12) 1930

*Relation of Diet to Health and Disease. E. Mellanby.—p. 677.
*Coronary Occlusion. C. Bramwell.—p. 681.
*Coronary Arteries in Case of Familial Liability to Sudden Death. C. E. K. Herapath and C. B. Perry.—p. 685.
Use of Surgery in Pulmonary Tuberculosis. H. M. Davies.—p. 687.
*Effects of Air in Vascular System and Mechanism of Death. D. T. Barry.—p. 689.
*Treatment of Desperate Cases of Diabetic Coma. R. D. Lawrence.—p. 690.
Biliary Cirrhosis in Elderly Woman. J. N. Banks.—p. 692.
Strangulated Hernia in Infant. T. W. Melhuish.—p. 693.
Death During Spinocaine Anesthesia. A. B. Hudson.—p. 693.

Relation of Diet to Health and Disease.—Mellanby again calls attention to his study of the action of vitamin A in puerperal septicemia. Of twenty-two patients who had entered the institution where the investigation was carried out in the two years prior to the new treatment, twenty died, a mortality of 91 per cent. Of nine patients treated from the beginning with vitamin A, eight have made complete recoveries. There have also been two other septicemic patients, one with an infection caused by *Bacillus coli*, who recovered, and the other with a staphylococcic infection, who died. Thus, of the total eleven patients, two have died, giving a mortality rate of 18 per cent, as compared with the mortality rate of 91 per cent in the control group. Mellanby thinks there is strong evidence, especially taken in conjunction with the results in animals, that vitamin A has a definite effect in raising the resistance of the body, both human and animal, to bacterial agencies, and that, in its absence from or deficiency in the body, the resistance to infection of this type is greatly diminished.

Coronary Occlusion.—Bramwell endeavors to show that the study of coronary thrombosis is not confined to the postmortem room. It is a definite clinical entity, which, in a large percentage of cases, can be recognized with certainty during life. Its recognition is important, because many of the patients survive, and a few are sufficiently restored to health to resume their former occupations. Further, a correct diagnosis is of vital importance, not merely in framing the prognosis but also in determining the treatment. An acute coronary occlusion may closely simulate an abdominal crisis, and if the condition is unrecognized a patient may be submitted to laparotomy, which, in view of the cardiac lesion, is almost certain to prove fatal. Other cases are mistaken for ordinary angina and treated with nitrites—a dangerous procedure in view of the low blood pressure. The crescendo character of the pain, its duration, the fact that it is not relieved by rest and that the attack frequently occurs when the patient is resting and is in no way attributable to exertion, are important. The fall in blood pressure, and the shock, prostration and vomiting which generally accompany the pain, serve to distinguish it from true angina, as do the feeble first heart sound, the gallop rhythm, the rapid pulse and the pericardial friction which are sometimes present. Even in the most desperate cases recovery may take place, especially when the patient is under 50 years of age.

Coronary Arteries in Case of Familial Liability to Sudden Death.—Herapath and Perry had an opportunity to examine the heart of a man, aged 43, who had died suddenly, as had his father (aged 42) and two brothers (aged 30 and 31, respectively). The cause of death would appear to have been impairment of the coronary circulation due to degenerative changes in the coronary arteries. The pathologic process corresponds with that of a premature senility of the arterial tree, with a particular incidence in the coronary arteries. There was no evidence of any infective factor.

Effects of Air in Vascular System and Mechanism of Death.—Barry has demonstrated experimentally that dogs can recover from the effects of introducing about 100 cc. of air into the jugular vein. Resistance to the effects is diminished in deep anesthesia and after section of the vagi. The heart in some conditions is the organ that fails in fatal cases, but failure of the respiratory center is the cause of death in others. Apnea is an important symptom indicating the loss of reaction in this center. Ventricular fibrillation is not a common cause of death. With regard to treatment, the inhalation of oxygen while the respiratory center is active is indicated. Artificial respiration should be tried when it shows signs of failure. As for bleeding and aspiration, they inspire little faith. Barry points out that experimental animals exhibit marked powers of natural recovery, and one is prone to attribute to some remedial measure an undue beneficial effect.

Treatment of Desperate Cases of Diabetic Coma.—Attention is drawn by Lawrence to dehydration as being the immediate cause of death from circulatory failure in desperate cases of diabetic coma. Such patients die, as do those with cholera, from depletion of tissue and blood fluids, and often in the anuric state. The condition is recognized clinically by a feeble, empty pulse, shrunken tissues, low eye tension, and oliguria or anuria. In addition to insulin they require immediately large quantities of fluid, preferably administered intravenously. A treatment with hypertonic saline solution and acacia solution is described.

Journal of Pathology & Bacteriology, Edinburgh

33: 233-500 (April) 1930

*Primary Malignant Intrathoracic Tumors. J. Maxwell.—p. 233.
*Embryonic Tumor of Liver Containing Striated Muscle. H. L. Sheehan.—p. 251.
*Diffuse Tuberculous Infiltration of Myocardium: Unusual Case. J. G. Thomson.—p. 259.
Antivaccinial Serum: 3. Evidence for Slow Union with Virus in Vitro. C. H. Andrewes.—p. 265.
Specific Antibody Absorption by Viruses of Vaccinia and Herpes. W. Smith.—p. 273.
*Multiple Malignant Neoplasms. J. W. Orr.—p. 283.
*Fatal Granulomatosis of Central Nervous System Due to Yeast (Torula). F. B. Smith and J. S. Crawford.—p. 291.
Invasion of Epidermis by Carcinoma. J. S. Dunn.—p. 297.
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Epithelial Proliferation in Lung of Rabbit Brought About by Intrapleural Injection of Solutions of Electrolytes. J. S. Young.—p. 363.
*Spinal Metastases of Cerebral Glioma of Type Known as Astrocytoma Fibrillare: Case. D. S. Russell and H. Cairns.—p. 383.
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Transplantable Melanoma of Mouse. H. E. Harding and R. D. Passey.—p. 417.
Intravitam and Supravital Staining: IV. Cellular Reactions Following Mild Irritation of Peritoneum in Normal and Vitally Stained Animals. D. F. Cappell.—p. 429.

*Acute Disseminated Encephalomyelitis as Sequel to Influenza. J. G. Greenfield.—p. 453.
Experimental Vaccinial Encephalitis in Monkey and Rabbit: Problem of Encephalitis Following Vaccination in Man. E. W. Hurst and R. W. Fairbrother.—p. 463.
Reaction of Central Nervous System to Vaccinia Virus. J. McIntosh and R. W. Scarff.—p. 483.
Primary Carcinoma of Kidney: Case. J. Gray.—p. 489.
Implantation of Secondary Carcinoma Within Intestines. J. H. Teacher. —p. 491.
Gonococcal Complement Fixation Test: Improvements in Technic. I. N. O. Price.—p. 493.

Primary Malignant Intrathoracic Tumors.—A series of 239 cases of primary malignant intrathoracic tumors is discussed by Maxwell and the histologic appearances are recorded in 135 of these cases. Primary bronchial carcinoma was found to occur in 184 cases. The chief morbid anatomic changes are described and the microscopic characteristics in 111 cases are discussed; reasons are given for accepting all of these cases as carcinomas in two main groups, an obvious columnar cell group with a tendency to squamous metaplasia and a small oval cell group which is slightly more common. The oval cell carcinomas are discussed in detail and reasons are given for the conclusion that they spring from the basal layer of the bronchial epithelium. It has not been shown that any of the tumors in this series arose directly in the epithelial lining of the pulmonary alveoli. The mediastinal tumors are shown to be a heterogeneous group, some being the result of infiltration or metastasis from a small primary bronchial focus, others being accepted as sarcomas arising in the mediastinal glands. No conclusive evidence could be found to show that any arose within the thymic remnants. Primary pleural tumors are shown to be a rare but well defined group and are briefly discussed.

Embryonic Tumor of Liver Containing Striated Muscle.—In a young girl, aged 6, the liver contained a number of papilliferous cysts lined by bile duct epithelium. The substance of the papillae consisted of undifferentiated cells. These cells in one cyst became malignant and formed a large tumor, destroying every other tissue except bile duct epithelium and showing a tendency to intravascular growth but not to metastasis outside the liver. They also differentiated into four types of more mature cells, including striated muscle. They are considered by Sheehan to be rest cells of mesoblast.

Diffuse Tuberculous Infiltration of Myocardium.—In a man, aged 41, the subject of uveoparotid fever (Heerfordt), the following lesions were found by Thomson post mortem: 1. Tuberculosis of the lungs apparently of mixed blood and lymphatic spread. 2. Tracheobronchial and mediastinal glandular tuberculosis. 3. Massive tuberculous infiltration of the septum and of the greater part of the wall of the left ventricle of the heart. Microscopically there was present a tuberculous arteritis which is suggested as a factor in the wide extent of the lesion.

Multiple Malignant Neoplasms.—Three cases in which two independent carcinomas were present are described by Orr. In one a carcinoma of the tongue, of the left tonsil and of the stomach were associated. In the second case a carcinoma of the rectum and of the stomach were found. In the third case a carcinoma of the breast and of the colon were associated.

Fatal Granulomatosis of Central Nervous System Due to Yeast.—A case is recorded by Smith and Crawford, in a woman, of fatal granulomatous infection of the brain and spinal cord by a yeastlike micro-organism, probably *Torula histolytica*.

Inheritance of Blood Group Factors.—Kirwan-Taylor presents data in support of the conclusion that no child can possess in its blood (Lattes 1929) an agglutinable substance which is not present in one of the parents. The possible medicolegal applications are obvious.

Spinal Metastases of Cerebral Glioma of Type Known as Astrocytoma Fibrillare.—The case described by Russell and Cairns is one of astrocytoma fibrillare of the right optic thalamus. The tumor did not give rise to any serious symptoms until four months before death, when hydrocephalus set in and advanced rapidly. This hydrocephalus was due to obstruction of the aqueduct of Sylvius. The tumor was firm and in its edge were numerous calcified areas which in life had revealed the outline of the tumor in roentgen films. On histologic examination the tumor was found to be composed entirely of fibrillary astrocytes. It had invaded the subarachnoid space by way of the right pulvinar. Miliary metastatic nodules were found in the subarachnoid space over the superior medullary velum and in the subarachnoid space of the spinal cord. These metastases were entirely composed of fibrillary astrocytes, and thus presented the same degree of differentiation as did the primary tumor; they gave rise to no recognizable clinical symptoms.

Acute Disseminated Encephalomyelitis as Sequel to Influenza.—Two cases of acute disseminated encephalomyelitis following influenza are described by Greenfield. One was fatal five days and the other seven weeks after the onset of symptoms. The lesions found in the nervous system were of the same kind as in the encephalomyelitis that sometimes follows vaccination smallpox and measles. These cases are considered to support the view that acute disseminated encephalomyelitis is a disease per se which may be brought on or directed against the nervous system by certain febrile or exanthematous diseases.

Lancet, London

1: 843-896 (April 19) 1930

Health in West Africa. D. B. Blacklock.—p. 843.
Impressions of Psychiatry in America. E. Mapother.—p. 848.
*Relation of Aceto-Acetic Acid to Diabetic Coma and Cause of Death. E. C. Dodds and J. D. Robertson.—p. 852.
Spinal Cord Tumors. A. M. Kennedy and L. Rogers.—p. 854.
*Presence of Antibodies to Herpes Virus in Postencephalitic and Other Human Sera. C. H. Andrewes and E. A. Carmichael.—p. 857.
*Improved Method of Ligaturing External Carotid Artery. N. Patterson. —p. 858.
Tonsillectomy by Diathermy Using Surface Anesthesia. W. Collins.—p. 859.

Relation of Aceto-Acetic Acid to Diabetic Coma and Cause of Death.—A study made by Dodds and Robertson of (*a*) the aceto-acetic acid and (*b*) the alkali reserve content of the blood in patients in diabetic coma failed to support the theories of ketosis and acidosis, respectively, as a cause of this condition. Thus, in many cases noncomatose diabetic patients were found to have a higher aceto-acetic acid content than the comatose patients, and it was found impossible to correlate the blood analyses with the clinical condition of the patient. On recovery from coma, it was found that the aceto-acetic acid content rose, thereby further indicating that the enol theory of diabetic coma is improbable. In the fatal cases it was found that death was preceded by a persistently falling blood pressure, and the importance of circulatory failure is indicated. The occurrence of leukocytosis in coma is confirmed.

Presence of Antibodies to Herpes Virus in Postencephalitic and Other Human Serums.—Antibodies to herpes virus were found by Andrewes and Carmichael in the serum of 72 per cent of twenty-five patients with postencephalitic parkinsonism and in 75 per cent of twenty-eight unselected controls. These observations, therefore, lend no support to the view that the virus of herpes simplex is the essential cause of epidemic encephalitis. Seven subjects with frequently recurring labial herpes all had antibodies in their serum.

Improved Method of Ligating External Carotid Artery.—The preliminary stages of the operation done by Patterson are the same as those described in the textbooks. The carotid sheath is exposed and incised over the internal jugular vein, which is freed from its fascial covering for a length of from 2 to 3 inches in the neighborhood corresponding to the region of the carotid bifurcation. The vein is now carefully separated from underlying structures, including the vagus nerve. It is then retracted toward the mesial plane, instead of laterally as in the classic operation, until the bifurcation of the common carotid comes into view. The hypoglossal nerve tends to be retracted forward with the vein and may never come into sight; of course, care must be taken to avoid injuring this nerve or its branch, the descendens hypoglossi. The actual ligation of the external carotid is carried out at the site of election by adopting the same technic as in the classic procedure. Sometimes it may be advisable to tie the ascending pharyngeal artery. In uncomplicated cases this method is said to be simpler than the older one.

Bulletins et Mém. de la Soc. des Chirurgiens de Paris

22: 37-104 (Jan. 24-Feb. 7) 1930. Partial Index

*Partial Amputation of Breast for Epithelioma. I. H. Rubens-Duval; II. Dartigues; III. G. Luquet; IV. J. Lanos and V. G. Léo.—p. 45.
Coxa Vara. Rœderer.—p. 65.
Vesiculography. Le Fur.—p. 70.

Partial Amputation of Breast for Epithelioma.—Rubens-Duval states that the practice of systematic, surgical removal of the whole breast with cleaning out of the axilla is based only on statistics which show that the more tissue one removes, the more chances one has of passing beyond the limits of the cancer. Statistics, however, fail to prove whether or not this total removal is the best treatment for all cases. Some relatively benign varieties of cancer of the breast may be cured by partial amputation. Dartigues reports the case of a woman, aged 65, on whom he performed a partial mammectomy for microscopic examination, and cancer was found. The patient refused a second, radical operation. At the present time, seven months after the first operation, what remains of the breast looks clinically healthy and there is no involvement of the lymph nodes. Luquet presents observations of two patients from whom he removed a small breast tumor, which on microscopic examination was found to be an epithelioma. One of the patients refused a complementary operation and in the last twenty-six months has not shown signs of recurrence of the tumor. The second one submitted to a radical removal of the breast and a cleaning out of the axilla. An examination of the excised tissue showed no evidence of cancer, either in the breast or in the lymph nodes, although symptoms were clinically perceptible. The author concludes that all tumors of the breast, even when doubtful in nature, should be treated by radical operation. Lanos presents an instance in which a biopsy showed that it was a case of epithelioma. He performed total amputation of the breast with cleaning out of the axilla. Microscopic examination of the excised tissue revealed no evidence of cancer, and the author concluded that the whole cancerous area was removed by the biopsy. Léo, from his observation of forty-seven breast tumors, prefers an extensive to a limited operation when the clinical and the anatomicopathologic diagnosis is doubtful.

Bull. et Mém. de la Soc. Méd. des Hôpitaux de Paris

(54): 213-282 (Feb. 24) 1930

Generalized Achondroplasia with Osteoporosis and Vitiligo: Basal Metabolism in Patients with Achondroplasia. G. Guillain and P. Mollaret.—p. 214.
*Congenital and Hereditary Symmetrical Palmar and Plantar Keratodermia. M. Debray and J. Sainton.—p. 226.
Intolerance and Anaphylaxis. A. Tzanck.—p. 228.
Pseudovisceralgic Form of Chronic Vertebral Rheumatism. A. Lacroix and R. Raynaud.—p. 236.
Measurement of Cardiac Capacity at Necropsy. C. Lian, M. Kaplan and P. Puech.—p. 240.
Respective Rôles of Right and Left Ventricle in Etiology of Various Types of Cardiac Insufficiency. C. Lian, P. Puech and R. Waitz.—p. 248.
Tuberculous Rheumatism of an Arthralgic Type with Recurrent Symptoms of Periosteal Involvement. G. Laroche and Poumeau-Delille.—p. 256.
*Severe Intoxication by Barbital and Formation of Hydrocyanic Acid in Blood. E. Kohn-Abrest, L. Capus, H. Desoille and Villard.—p. 261.
Hypophyseal Syndrome with Cirrhosis of Liver and Splenomegaly. G. Paisseau and V. Oumansky.—p. 267.
Treatment of Chronic Polyarthritis by Gold Salts. J. Forestier.—p. 273.

Congenital and Hereditary Symmetrical Palmar and Plantar Keratodermia.—Debray and Sainton observed a case of keratodermia of the palms and soles in a woman, aged 26. There was a considerable thickening of the palms and soles and a tendency for the involved areas to be moist. The condition appeared in the patient soon after birth, and was found to be present in all members of the family. The patient was otherwise normal.

Severe Intoxication by Barbital and Formation of Hydrocyanic Acid in the Blood.—Kohn-Abrest et al. observed two cases of barbital addiction in which hydrocyanic acid was noted in the blood. The first was in a woman who succumbed shortly after she had taken 3 Gm. of barbital, and the other was in a man who took 4.8 Gm. and succumbed after having presented dyspnea of a Cheyne-Stokes type and cyanosis. Venesection and lavage of the stomach led to the recovery of the first patient. Necropsy in the other showed that barbital derivatives had been transformed to hydrocyanic acid, probably as a result of putrefaction. The authors point to the toxicologic importance of these observations and discuss the methods of treatment of such poisonings.

(54): 283-306 (March 3) 1930

*Acute Leukemia with Mediastinal Tumor. P. Émile-Weil, Isch-Wall and Bertrand.—p. 287.
Tuberculous Rheumatism of Arthralgic Type with Recurrent Symptoms of Periosteal Involvement. Guy-Laroche.—p. 293.
Relation Between Chickenpox and Herpes Zoster. F. Masselot.—p. 294.
Cutaneous Eruption and Prolonged Infectious Endocarditis. H. Eschbach.—p. 297.
Radicular Syndrome After Spinal Anesthesia. C. I. Urechia and L. Dragomir.—p. 300.
Diaphragmatic Hernia of Stomach: Medical Form Without Previous Traumatism. P. Luton and M. Gauch.—p. 302.

Acute Leukemia with Mediastinal Tumor.—Émile-Weil et al. conclude that from a hematologic point of view the case that they report was one of an acute, authentic leukemia, but clinically there appeared some peculiarities, as the presence of a large mediastinal tumor, the absence of an infectious syndrome, and the absence of hemorrhage. These peculiarities are characteristic of chloroma and differ only in the localization of the tumors. The absence of a green color fails to change the diagnosis of chloroma, for more important than color are the microscopic study of the tumors and their clinical similarity.

(54): 355-380 (March 17) 1930

*Danger in Injecting Large Doses of Epinephrine. Pasteur Vallery-Radot.—p. 355.
Use of Phenolsulphonphthalein for Study of Renal Function. A. Goris and Pasteur Vallery-Radot.—p. 357.
Late Syndrome of Scleroderma with Cataract Due to Endocrine Disturbances. A. Sézary, A. Favory and H. Mamou.—p. 358.

Danger in Injecting Large Doses of Epinephrine.—Pasteur Vallery-Radot reports a case of complete aphasia due to an overdose of epinephrine. The patient was given three subcutaneous injections of 0.25 mg., 0.5 mg. and 0.5 mg. on three consecutive days. The author asserts that not more than 0.25 mg. of epinephrine should be given at the first injection except in cases of severe shock, in which 0.5 mg. may be used.

Bulletins et Mém. de la Soc. Nat. de Chirurgie, Paris

56: 197-232 (Feb. 22) 1930

Vicious Union of Fracture of Both Malleoli. P. Moiroud.—p. 198.
*Intestinal Perforation During Typhoid. P. Moiroud.—p. 200.
Biliary Ileus. H. Duboucher.—p. 205.
*Resection of Pylorus in Gastric Perforations Due to Ulcer and Cancer. P. Guibal.—p. 214.
*Total Invagination of Colon. Brisset.—p. 223.
*Gastric Ulcer Perforated Without Clinical Symptoms. R. Grégoire.—p. 225.

Intestinal Perforation During Typhoid.—This occurred in a boy, aged 11, who had an unusually severe typhoid infection. Operation could not be done by Moiroud until eighteen hours after the perforation had occurred, when the patient was showing symptoms of generalized peritonitis. When the abdomen was opened, a thick, yellow fluid escaped and a small perforation was found on the convex part of the last loop of the ileum at a distance of about 25 cm. from the cecum. The intestinal loop was exteriorized, a suprapubic incision was made and a drain was inserted, which was, however, removed after forty-eight hours. Fluid was discharged abundantly through the fistula and the perforation increased gradually. It appeared as if the entire Peyer patch had become necrotic. The patient seemed to improve, but about two weeks later a second perforation occurred and during dressing of the wound, which was exceedingly painful, a hernia of the intestinal mucous membrane took place with enlargement of the perforation. However, about fifty days after the operation, the intestine was restored to its normal position. One year and eight months afterward the child was reported in good health and had resumed his school work.

Resection of Pylorus in Gastric Perforations Due to Ulcer and Cancer.—Guibal stresses the importance of early intervention after gastric perforations have occurred. In three of his four patients operation could be done within seven or eight hours, in spite of which one patient subsequently died. In the other patient the operation was done fifty-three hours later, but the result was favorable as the perforation had been closed, thus preventing the escape of intestinal contents into the peritoneal cavity. He points out that the condition of the stomach at the time of perforation is important in the prognosis. In the first three patients perforation occurred about four hours after the meal, and this explained the minor intraperitoneal effusion and lack of food particles and the fact that the peritoneal reaction was altogether moderate and that there was no subsequent infection. But in the other patient also there was no severe reaction, for he had been suffering for several days and had therefore not been able to eat. Likewise the patient who succumbed did not present a severe reaction; however, fluid escaped in great quantities from the wound and the tentative diagnosis of a pancreatic fistula was made. Although he appeared to improve after a second intervention, severe hematemesis occurred eighteen days later which proved fatal.

Total Invagination of Colon.—Brisset's patient, aged 46, was sent to the clinic with a diagnosis of acute appendicitis. However, he had a normal pulse with only a slight rise in temperature, and there was no pain. Next day tenesmus and a bloody stool occurred, and rectally an invagination was noted. Surgical intervention was done, disclosing double ileocecal and colocolic invaginations which were fixed by adhesions. Although the patient had tuberculosis, recovery was rapid and without complications.

Gastric Ulcer Perforated Without Clinical Symptoms.—Grégoire maintains that acute pain is not a sign that perforation of a gastric ulcer has at that moment occurred. It is rather a symptom of peritonitis and follows the actual perforation by several hours. His patient, aged 35, had had pain from three to four hours after every meal. Four months later vomiting occurred, but her condition improved after strict adherence to a diet. However, five months later severe hematemesis necessitated hospitalization. There was no further vomiting, but the patient suffered considerable pain, in spite of which she was able to walk to the distant room in which roentgen examinations were made. Ingestion of the barium compound renewed the pain and roentgen examination disclosed a duodenal ulcer and the presence of air in the peritoneal cavity. Surgical intervention was done half an hour later. The perforation, from which the barium meal flowed in a thin stream, was on the anterior side of the proximal portion of the duodenum. Posterior transmesocolic gastro-enterostomy was done and a drain was laid which was removed nine days later. Recovery ensued without complications.

Journal d'Urologie Médicale et Chirurgicale, Paris

29: 1-111 (Jan.) 1930

Polypi of Pelvis of Kidney. P. Paris.—p. 5.
Syphilitic Cystitis. A. Orofino.—p. 25.
*Subcutaneous Rupture of Kidney. G. S. Epstein.—p. 31.
Lithiasis with Anuria in Persons with Solitary Kidney. C. Gauthier and J. Cibert.—p. 44.
Sequestrum in Urethra. B. Pankratiev.—p. 50.
Irrigation of Seminal Vesicles. H. Blanc.—p. 53.

Subcutaneous Rupture of the Kidney.—Epstein reports eight cases due to trauma. The author divides subcutaneous rupture of the kidney into three clinical groups: serious cases which necessitate immediate operation, less serious cases, and those of simple clinical evolution. Invariably the injury can be diagnosed through hematuria and the formation of a tumor. In severe cases the kidney should be resected immediately, although it is advisable to perform a function test of the other kidney before operating or during the operation. A second group causing hematuria and tumefaction is not of immediate danger to life and results in the formation of adhesions. Epstein favors expectant treatment in these cases and operates only if the symptoms become aggravated.

Paris Médical

1: 221-236 (March 8) 1930

*Biologic Diagnosis of Pregnancy. L. Brouha, H. Hinglais and H. Simonnet.—p. 221.
Therapeutic Effect of Extract of Fenugreek (Trigonella). P. M. de Traverse.—p. 225.
Treatment of Angina Pectoris with Muscle Extract. J. S. Schwarzmann.—p. 226.
Separate Functions of Liver and Bile Tract. M. Chiray and I. Pavel.—p. 228.
Artificial Pneumothorax in Social Hygiene. G. Rosenthal.—p. 232.
Treatment of Diphtheria Carriers with Oxyquinolin Sulphate. M. Lisbonne, P. Devèze and Labraque-Bordenave.—p. 234.

Biologic Diagnosis of Pregnancy.—Brouha et al. found that the urine of pregnant women contains a hormone after the fifteenth day of pregnancy which they consider is produced by the anterior lobe of the hypophysis. After the third month of pregnancy it also contains folliculin. The authors repeated the experiments of Aschheim and Zondek on not fully developed female mice; injection of the urine of pregnant women caused rapid development of the genital tract. Two substances appear to be active in the same direction; namely, the hypophyseal hormone and folliculin. The fact that the urine of menstruating, nonpregnant women likewise contains folliculin leads to as much as 40 per cent error if the test is applied in doubtful cases. The authors found that if male mice are used, this error can be avoided. Folliculin does not have a stimulating effect on the genitalia of male mice of any weight or age. However, injection of the hypophyseal hormone causes a marked increase in the size and weight of the seminal vesicles as compared to control animals. In 142 women this test was performed with 100 per cent accuracy. The hypophyseal reaction was particularly intense in human beings and primates but so far has not been noted in other animals. The reaction disappears on the third or fourth day after delivery. In all, 650 animals were used by the authors, who state that hypertrophy of the seminal vesicles is simpler to verify than the changes occurring in the ovaries of female mice.

Presse Médicale, Paris

38: 145-160 (Feb. 1) 1930

Conditions Before Deficiency Diseases Have Become Evident. G. Mouriquand.—p. 145.
*Experimental Tuberculosis of Lymph Nodes in Guinea-Pigs. G. Paisseau and V. Oumansky.—p. 147.
*Severe Eruptive Fever with Myoclonus. V. Audibert and Murat.—p. 149.
Acid-Base Equilibrium of Blood, pH and Alkali Reserve. R. Letulle and M. Delaville.—p. 150.

Experimental Tuberculosis of Lymph Nodes in Guinea-Pigs.—Paisseau and Oumansky report the results they obtained in twenty-five guinea-pigs through inoculation of nonfiltered pathologic substances obtained from five patients who were suffering from tuberculous ostearthritis, tuberculous abscess and hemorrhagic pleurisy, respectively, and from one patient in whom one kidney had been removed for tuberculosis two years previously. The type of tuberculosis which was produced in the guinea-pigs differed from the lesions observed by other workers, especially Calmette and Valtis, by the presence of numerous acid-fast bacilli whose reinoculation did not lead to the production of the original type of lesions reported by these authors. All attempts to cultivate these bacilli failed. In three of six guinea-pigs, intradermotuberculin tests were positive. The lesions caused by inoculation of material obtained from three different patients were examined microscopically; they contained epithelioid cells and marked sclerosis throughout the tissue. In general, the outstanding characteristics of the experimental tuberculous lesions were the multiple disseminated enlarged nodules which were noted at the site of inoculation as well as in the abdominal, iliac, lumbar, mesenteric and bronchial lymph nodes. In several animals the adenopathies could be palpated in the form of chains of hard nodules reaching from the site of inoculation in the inguinal region up to the umbilicus. It was noted that these tumefactions had disappeared spontaneously after the fourth or fifth month in several animals. Although several animals died, necropsy did not reveal involvement of the viscera. The experimental tuberculosis was localized to the lymphatic system and its evolution

was favorable as a rule. The strain of bacilli obtained from the lesions was considerably attenuated. The authors compare these lesions clinically to the suppurative nodules of scrofula.

Severe Eruptive Fever with Myoclonus.—This unusual occurrence is reported by Audibert and Murat. A man, aged 62, complained of headache and arthralgic pain one evening after having worked in his garden. There was a slight rise of temperature and two days later a generalized erythema was noted which was especially marked on his legs and abdomen. The following week his condition had become worse, he was asthenic and a marked aversion toward milk became evident. For several days pain was noted in the precordial region. Hiccups occurred and muscular spasms in the right leg and clonic symptoms in the facial muscles were noted. The patient became more and more apathic. The urinary bladder ceased to function and fifteen days after the onset of the disease death ensued. Although the condition is usually benign, the authors point to the importance of a reserved prognosis and direct attention to the possible relation of the disease to certain other endemic fevers noted in Japan and Tunis (North Africa) and to Rocky Mountain spotted fever.

38: 265-280 (Feb. 22) 1930

Kidneys of Old Men. Pasteur Vallery-Radot and P. Delafontaine.—p. 265.
*McClure-Aldrich Test in Phlegmasia Alba Dolens. J. Louvel and M. Tisserand.—p. 268.
Origin of Cleft Palate. E. Cadenat.—p. 270.

McClure-Aldrich Test in Phlegmasia Alba Dolens.—Applying the McClure-Aldrich test in five patients with symptoms of phlegmasia alba dolens, Louvel and Tisserand found that two distinct types of edema may be distinguished. In the paraphlebitic hydrophilous type, mobilization is contraindicated. However, even marked edema does not contraindicate treatment by physical therapy if it is anhydrophilous and is coincident with phlegmasia alba dolens that has been apyretic for about three weeks. The test should be repeated several days after recovery, because it may announce a recurrence of the process. The McClure-Aldrich test gives support to the theory that the physiopathology of edema is not entirely on a mechanical basis but that there is considerable involvement of the tissues.

Schweizerische medizinische Wochenschrift, Basel

60: 261-284 (March 22) 1930

Noma of Cheek. J. Friedmann.—p. 261.
Monocytic Angina. A. Ott.—p. 263.
Brucella Abortus Infection in Man. H. Custer.—p. 264.
*Ascariasis and Pleural Empyema. E. Jenny.—p. 266.
Apparent Horizontal Halving of Vertebrae in Roentgenogram: Probable Cause of This Phenomenon. E. Baumann.—p. 267.
Gastric Secretion and Acid-Base Equilibrium. P. H. Rossier and P. Mercier.—p. 267.
Endemic of Inflammation of Throat Probably Caused by Impure Milk. P. Meyjes.—p. 272.

Ascariasis and Pleural Empyema.—Jenny reports the case of a boy, aged 16 months, who had ascariasis. A suppurative pleural effusion which contained eggs of ascarides developed on the right side. In the course of three months the boy recovered completely. The development may be explained as follows: By way of the choledochus, ascarides entered the liver. On the surface of the liver they caused an abscess, which perforated through the diaphragm into the pleural cavity.

Riforma Medica, Naples

46: 237-276 (Feb. 17) 1930

Peculiar Syndromes and Modes of Intervention in Appendicitis. D. Giordano.—p. 239.
*Cutaneous Saccharomycosis with Multiple Localization: Case. M. Pazienza.—p. 244.
*Relations Between Serologic Tests and the d'Amato Test in Syphilis. E. Pittari.—p. 251.
*Reactivation of Malaria with Tuberculin. G. Cacciapuoti.—p. 255.
Peculiarities of Cardiogram Characteristic of Narrow Chest. G. Castelli.—p. 257.
Painful Atrophy of Fingers, or Ledderhose-Secrétan Syndrome? F. Bellelli.—p. 257.

Cutaneous Saccharomycosis with Multiple Localization.—Pazienza shows how difficult the diagnosis is and how easy it is to confound a mycotic granuloma with other lesions, especially neoplastic lesions. Bacteriologic and histologic researches, repeated many times, have enabled him to identify the pathogenic agent with *Cryptococcus hominis*. He calls attention to lesions of this kind, which if allowed to exacerbate and to extend further become, as in this instance, resistant to all forms of treatment, whereas in the beginning some one might have proved effective.

Relations Between Serologic Tests and d'Amato Test in Syphilis.—Pittari concludes from his research that: 1. In the majority of cases, there is a close agreement between the results of the serologic tests and of the d'Amato test. 2. The d'Amato test may be particularly useful in certain localizations of syphilis, as in the liver, in which the serologic tests often give negative results. 3. The d'Amato test is useful in suspected cases with a negative serodiagnosis, before treatment is instituted.

Reactivation of Malaria with Tuberculin.—Cacciapuoti used tuberculin for the reactivation of latent malaria, obtaining excellent results. An injection of from 0.75 to 1 mg. of tuberculin in a phenolized solution induced in about forty-eight hours a typical attack. The author therefore recommends its use, particularly in all instances in which it is necessary to discover malaria carriers for the sake of the community in general.

46: 277-316 (Feb. 24) 1930

So-Called Pseudoleukemia: Case. A. Ferrata and A. Fieschi.—p. 279.
Syphilis of Stomach. P. G. Castellino.—p. 282.
Right Strangulated and Suppurative Crural Appendicocele: Case. Finucci Valerio.—p. 284.
*Mechanism of Intestinal Hemorrhage in Typhoid. W. Mikulowski.—p. 289.

Mechanism of Intestinal Hemorrhage in Typhoid.—Mikulowski reports three cases of typhoid in children, in which he observed gastric, intestinal and subcutaneous hemorrhages, with a "thrombopenic" hemorrhagic syndrome, in the first week of the disease. This fact, he says, proves that there is a relation between blood disorders and the appearance of early intestinal hemorrhages. An early intestinal hemorrhage during typhoid is evidence of a hemorrhagic diathesis, provoked in a transitory manner by the typhoid infection. By analogy, one may logically conclude that the ordinary intestinal hemorrhages arising between the seventeenth and the twenty-first day of the disease are due, for the most part, to the same mechanism. The idea of a hemorrhagic syndrome during typhoid is of practical importance, because it will encourage physicians to examine systematically the physical properties of the blood of every patient with typhoid at the beginning of the disease, in order to apply suitable treatment that will mitigate the hemorrhagic diathesis and prevent the appearance of profuse and often fatal hemorrhages. The therapeutic methods should act mainly on the coagulability of the blood and not so much on vasoconstriction.

Revista Médica de Barcelona

13: 1-96 (Jan.) 1930. Partial Index

*Hereditary Factor in Essential Hypertonia. M. Badia Brandia.—p. 3.

Hereditary Factor in Essential Hypertonia.—From a review of the literature and from his own observations, Badia Brandia reaches the following conclusions: Essential hypertonia is observed in 65 per cent of cases of high blood pressure. The cardinal characteristic of the condition is its hereditary and familial nature. It behaves as the typical predominant factor in the strictest mendelian sense, and it is transmitted with great regularity. This hereditary morbid predisposition makes all the other external and constitutional factors secondary, and it represents the union of several complex factors derived from the sympathetic nervous system, the endocrine glands, and so on. Other characteristics of less importance are its late appearance (at about the age of 40), its slow evolution (about twenty years' duration), its association with the megalosplanchnic constitution and its fatal end. Death occurs by either apoplexy or heart failure. In the cases in which hypertension is of a renal origin, death is caused by uremia, whereas in essential hypertonia it is caused by heart failure. A megalosplanchnic constitution is a coadjuvant factor. In patients of this type, hypertonia appears at an earlier age and death occurs sooner than in patients not of this type. The fact that these persons have a low blood pressure before 40 years does not exclude the

probability that hypertonia may develop later. Because of the late appearance of the condition and its slow evolution, persons with hypertension, as a rule, reach the limit of the normal length of life. The prognosis is good, though some factors (such as the condition of the heart, of the kidneys and of the vessels) may have a bad influence. Among the factors which should also be considered in the prognosis are the constitution, previous illnesses, the cause of the last illness, and the age at which the parents of the patient died. Hypertonia and constitution are two factors which may be inherited individually or in association with each other. When inherited in association, it is probable that the patient will die at about the same age at which the parent (from whom he inherited these factors) died. Heredity in this case is homochronous. An obese, hypertensive megalosplanchnic patient (whose parents were thin) will die younger than his parents did. On the contrary, the thin hypertensive patient (whose parents were megalosplanchnic) will live longer.

Semana Médica, Buenos Aires

37: 513-576 (Feb. 27) 1930

*Medical Treatment of Pulmonary Abscess. G. Peco and F. E. Secco.—p. 513.
Hydrarthrosis: Late Serum Reaction After Administration of Anti-anthrax Serum. I. Natin.—p. 523.
*Causes of Death from Carbuncle in Diabetic Patients. R. Rodriguez Villegas.—p. 527.
Technics and Results of Dick Test: Advisability of Standardization of Dose. E. A. Molinelli.—p. 529.
Early Diagnosis and Treatment of Typhoid. A. A. Saintout.—p. 541.
Tuberculosis in Early Childhood. G. A. Schiavone.—p. 543.
Uremia. H. Annes Dias.—p. 562.
Bacteriolysis and Bacteriotherapy: Effects of Provoked or Normal Organ Ferments on Tubercle Bacillus. J. W. Howard.—p. 571.

Medical Treatment of Pulmonary Abscess.—Peco and Secco consider as important points for the treatment of pulmonary abscess the previous determination of its localization, extension, evolution and nature. During the acute period, they advise medical treatment to promote the natural drainage of the abscess. Daily subcutaneous injections of emetine hydrochloride should be resorted to first. The dose should be from 0.006 to 0.008 Gm. (divided into two doses of from 0.003 to 0.004 Gm.) each day for ten days. If after that period improvement is not manifested, the authors advise the use of specific serotherapy with subcutaneous injections of antigangrenous serum in cases of putrid and fetid abscesses, and antistreptococcic serum in cases of simple abscesses in which the streptococcus is the predominant organism. Third in importance is the treatment with autolysates made from the expectorations of the patient. The treatment with arsenical drugs is particularly indicated in the presence of a putrid abscess in which spirochetes are the predominant organisms, and of abscesses of amebic origin. If the patient does not improve, surgery is indicated to effect easy evacuation of the pus. In a group of six cases treated by the authors, good results were obtained with emetine hydrochloride in three cases (one of the patients also received subcutaneous injections of antistreptococcic serum and later autolysates); from serotherapy alone in two cases, and from autolysates in one case. The treatment with arsenical preparations was coadjuvant treatment in some of the cases.

Causes of Death from Carbuncle in Diabetic Patients.—Rodríguez Villegas says that a carbuncle, when treated early, has a good prognosis (even in patients with grave diabetes). The most serious and frequent complications of diabetes are either carbuncle or gangrene of the legs. Such cases constitute a serious medical and surgical problem. The carbuncle should be extirpated as if it were a malignant tumor. The author says that the most frequent cause of death is septicemia (40 per cent). Of five patients whom the author observed in two Argentinian institutions, two died from septicemia, one from shock six hours after operation, and one from bronchopneumonia; in one the cause of death is not stated. All these patients entered late (about fourteen or twenty days after the onset of the complications) and were in a condition either of precoma or of grave toxemia. Strict personal hygiene, diet and insulin therapy applied early are the principal factors to secure success from the treatment. Operation should be performed early and should include removal of all diseased tissue (not only the central part of the carbuncle but also of those parts to which the subcutaneous cellulitis has spread).

Archiv für Gynäkologie, Berlin

140: 1-284 (March 6) 1930

*Ammonia Content of Blood During Pregnancy. A. Bock.—p. 1.
Resistance of Erythrocytes to Bile Salts During Pregnancy. H. Eufinger, H. Wieshader and L. Focsaneanu.—p. 21.
Mechanism of Labor Without Pressure of Spinal Column of Fetus. W. Lüttge.—p. 27.
Metabolism in Puerperal Sepsis. N. Louros and E. Gaessler.—p. 43.
Statistics on Cesarean Section for Years 1915-1928. E. von Ammon.—p. 66.
Intracranial Pressure in Fetus and Changes Produced in It by Application of Forceps. E. Gurewitsch and J. Vögel.—p. 123.
*Diagnosis of Pregnancy: A Simple Serum Reaction. E. Manoiloff.—p. 138.
Causes of Onset of Labor. H. Rossenbeck.—p. 141.
Corpus Luteum: Physiology. H. Knaus.—p. 181.
Oxidation Quotient of Urine During Menstruation. H. Lewin.—p. 191.
*Cholesterol Content of Blood in Cancer. H. Guthmann.—p. 202.
*Artificial Vagina Formed from Sigmoid. B. Frankenberg.—p. 226.
Sarcoma of Great Omentum. A. Mandelstamm.—p. 253.

Ammonia Content of Blood During Pregnancy.—Bock states that despite the fact that the blood ammonia plays a rôle in maintaining the actual neutrality of the blood during pregnancy, its amount has heretofore not been determined. In examinations of the blood of 120 pregnant women, he found that whereas the amount of preformed ammonia in nonpregnant women is 0.293 mg. per hundred cubic centimeters, during the first half of pregnancy it is increased to 0.314 mg. and during the last half to 0.401 mg. During labor the amount for the first stage is about the same as for the last half of pregnancy, but during the second stage it reaches its maximum value of 0.501 mg. On the fifth day of the puerperium the normal value is not yet reached (average value of 0.347 mg.). In all of eight cases of toxicosis of pregnancy the amount was increased (average value of 0.648 mg.). In cases of eclampsia the amount was not greater than in other forms of toxicosis.

Diagnosis of Pregnancy: A Simple Serum Reaction.—Manoiloff describes a serum reaction for pregnancy in which he uses the following reagents: (1) a 2 per cent aqueous solution of theobromine sodiosalicylate in which the latter is completely dissolved, and (2) a 0.2 per cent filtered alcoholic solution of nile blue. The glass vessels must be perfectly clean and of the same size. To 5 drops of unheated fresh serum, which must be clear and transparent, 1 cc. of the first reagent is added and the mixture is shaken; 1 drop of the second reagent is then added and the mixture is again shaken vigorously. After an interval of from a few minutes to one hour, the result is read. If the serum examined is from a nonpregnant woman, the solution remains blue or becomes bluish or bluish rose. If it is from a pregnant woman, it is decolorized and appears yellowish rose or yellowish. The author states that he has obtained correct results with this reaction in 94 per cent of 696 serums that he tested.

Cholesterol Content of Blood in Cancer.—In determinations of the cholesterol content of the blood in 229 cases of cancer, Guthmann found that even in persons with early carcinoma the amount is decreased. In late carcinomatous processes the cholesterol content of the blood is markedly decreased. In cancer there is a direct relation between the clinical course of the condition and the cholesterol content of the blood.

Artificial Vagina Formed from Sigmoid.—Frankenberg gives an illustrated description of a method of forming an artificial vagina in which he uses a segment of the sigmoid. The advantages of this method are that the blood supply of the segment of sigmoid is not interfered with as much as is the blood supply of the loop of small intestine used in the Baldwin operation; the ease with which the sigmoid is sutured to the introitus vaginae; the small amount of mucus secreted by the sigmoid as compared with the amount secreted by the small intestine; the absence of a tendency to the formation of a septate vagina, and the greater distensibility of the sigmoid. In four of five cases in which he used this method the author obtained good results.

Deutsche medizinische Wochenschrift, Berlin

56: 465-510 (March 21) 1930

Diagnosis and Treatment in Fractures of Patella. C. Goebel.—p. 465.
Treatment of Insomnia. H. Molitor.—p. 468. C'en.
*Therapeutic Value of Extracts from Parathyroids. K. Hajós.—p. 471.
Prophylaxis and Treatment of Mastitis. R. Brühl.—p. 473.
*Funicular Myelosis in Pernicious Anemia. H. Pinéas.—p. 476.
*Cod Liver Oil with Elementary Phosphorus an Essential Factor in Gerson-Herrmannsdorfer's Dietary Treatment of Tuberculosis. M. Gerson.—p. 478.
Reply to Preceding Article. A. Bacmeister and P. Rehfeldt.—p. 480.

Therapeutic Value of Extracts from Parathyroids.—In experiments with extracts from the parathyroids, Hajós discovered some new therapeutic applications. Parathyroid therapy brings good results not only in tetany and spasmophilia but also in such conditions as idiosyncrasy, clinical anaphylaxis and the so-called allergic disturbances. This therapeutic effect cannot be explained as being due entirely to the increased calcium content of the blood. A large percentage of the patients had previously been treated with calcium preparations, but without result, whereas a combination of oral calcium therapy with injections of hormonal extract from the parathyroids led to recovery or at least to improvement. The author thinks that besides the prolonged calcium effect on the sympathetic system the parathyroids have still another function, as yet not thoroughly understood but capable of exerting a favorable influence on the disturbed sympathetic equilibrium. Careful observations in patients with nephritis or nephrosis convinced the author that in the treatment of these conditions parathyroid preparations are of no special value. He found that the extract influenced neither the diuresis nor the blood pressure. It appears that if the rest nitrogen is only slightly increased, parathyroid extract is helpful. However, if considerable amounts of nitrogen are retained, the preparation is ineffective. Other disorders in which parathyroid extract might be of therapeutic value are the hemorrhagic diathesis and chronic hemorrhages. The author's experiences in such cases were limited, so that he cannot make definite statements. However, he wishes to direct attention to this question, and he advises that in cases in which a prolonged calcium treatment is indicated, the oral administration of calcium should be combined with injections of extract from the parathyroids.

Funicular Myelosis in Pernicious Anemia.—According to Pinéas, the correlation between funicular myelosis and pernicious anemia is as yet not entirely clear. He studied fifteen cases, and five of them he describes in detail. In the majority of cases the characteristic symptoms of pernicious anemia had been manifest several years before the nervous disorders. In four instances, however, the disease commenced with motor and sensory disturbances, and the symptoms of pernicious anemia developed later. The author states that in patients with spinal symptoms, even if there are no indications of anemia, the blood picture should be studied and other signs of anemia should be watched for, such as paresthesia of the tongue, achylia and yellow discoloration of the serum. He thinks that if this is done, anemia may be discovered in many cases of funicular myelosis. He also thinks that early liver therapy of anemia will prevent an exacerbation of the nervous symptoms. He recommends that large doses of liver be given for longer periods, and if this is done, the liver treatment will also influence the spinal symptoms, and the failures will not be as numerous as some authors are inclined to believe.

Cod Liver Oil with Phosphorus an Essential Factor in Gerson-Herrmannsdorfer's Dietary Treatment of Tuberculosis.—Referring to an article by Bacmeister and Rehfeldt, who stated that cod liver oil with elementary phosphorus was not an essential factor in Gerson-Herrmannsdorfer's dietary treatment, and when given in large doses would even be harmful, Gerson stresses the significance of cod liver oil. He comes to the conclusion that it is difficult to determine the therapeutic value of each factor of the treatment. Patients with dissimilar constitutions react differently to the treatment as a whole as well as to the component factors. Therefore it was advisable to find a treatment suitable for the average person. The nature and effect of the dietary treatment are closely connected with deprivation of chlorine, abundance of vitamins and mineral salts, limitation of carbohydrates and of proteins, and generous supplies of butter. The combined effects of all these components guarantee the good results of this constitutional therapy.

Klinische Wochenschrift, Berlin

9: 433-480 (March 8) 1930

So-Called Mitogenetic Rays (Gurwitsch). F. Wassermann.—p. 433.
Statistical Studies on Lefthandedness and Its Variations. B. Kamm.—p. 435.
*Uric Acid Content of Blood and Acidosis: Their Significance for Prognosis of Chronic Diseases of Kidneys. W. Singer.—p. 440.
Determination of Quantity of Blood in Children. H. Seckel.—p. 441.
Clinical Aspects and Diagnosis of Subacute Epidemic Encephalitis. F. G. von Stockert.—p. 445.
Advisability of Performing Serologic Tests for Syphilis on All Hospital Patients. G. Zimmermann.—p. 448.
Syphilis Reaction in Patients with Diphtheria. V. Niederwieser.—p. 450.

Uric Acid Content of Blood and Acidosis: Their Significance for Prognosis of Chronic Diseases of Kidneys.—Observations on patients with diseases of the kidneys convinced Singer that the determination of the uric acid content of the blood and the detection of the alkali reserve are of equal significance in the prognosis of severe renal insufficiency. The two methods supplement each other. In exceptional cases the one is superior to the other. It is therefore advisable always to perform both tests.

9: 481-528 (March 15) 1930

Present Status of Knowledge Concerning Male Sex Hormone. S. Loewe and H. E. Voss.—p. 481.
Cholecystography and Function of Liver. R. Bauer and U. Strasser.—p. 487.
*Meatless Diet for Treatment of Ménière's Disease. O. Muck.—p. 491.
Hormone of Ovary and of Placenta of Greater Therapeutic Value Than Hormone of Anterior Lobe of Hypophysis. O. O. Fellner.—p. 494.
Clinical Experimental Studies on Poisonous Effects of Tribromethanol on Liver. P. Kaczander.—p. 495.
*Tests of Metabolism in Patients with Exophthalmic Goiter: Self-Regulation of Diseased Organism. F. Boenheim.—p. 497.
Examination of Cerebrospinal Fluid with Flocculation and Wassermann Tests. H. Sachs and E. Witebsky.—p. 499.
New Micromethod for Quantitative Determination of Sugar in Urine. E. Pros.—p. 501.

Meatless Diet for Treatment of Ménière's Disease.—Muck points out that the vasoconstrictor nasal reflex, the phenomenon of mucographia alba, which is produced by the epinephrine probe test, always indicates a disturbance in the cephalic vascular innervation. This reflex can be produced in epilepsy, in migraine and also in Ménière's disease. The fact that the reflex can be produced in Ménière's disease proves that this disorder is caused by angiospastic conditions in the auditory artery. Karger has proved that epilepsy in children can be counteracted by a meatless diet. Accordingly the author subjected patients who had frequent attacks of migraine, a disturbance to which he applies the term hemicrania sympathicotonica, to a meatless diet. He obtained good results; either the attacks ceased entirely or they became less frequent and less severe. These observations induced the author to employ the meatless diet also in the treatment of patients with frequent attacks of Ménière's disease. He gives a detailed report of five cases. That this method was successful was proved not only by the outcome of the epinephrine probe test but also by the patients' own observations. They found that the meatless diet had influenced their condition favorably, and they were willing to continue the diet. The author emphasizes that the treatment can be successful only in those patients who adhere strictly to the regimen.

Tests of Metabolism in Patients with Exophthalmic Goiter: Self-Regulation of Diseased Organism.—Boenheim determined the basal metabolic rate in forty-six patients with exophthalmic goiter. He found that in thirty-seven persons the basal metabolism was increased, in six it was normal and in three it was reduced. In order to show that in the latter three cases the diagnosis of exophthalmic goiter was correct, the author describes two of them. In these patients the condition of the basal metabolism and of the specific dynamic action indicates a sort of self-regulation on the part of the diseased organism. As yet it has not been determined what causes this

self-regulation nor why it does not become effective in all instances. The author determined the basal metabolic rate and the specific dynamic action also in ten patients with myxedema. In one patient the metabolic rate was normal, in all the others it was reduced. It was also noted that the specific dynamic action usually is inversely proportional to the basal metabolic rate; that is, the lower the basal metabolism, the higher the specific dynamic action.

Medizinische Klinik, Berlin

26: 375-412 (March 14) 1930

Rheumatic Infection During Childhood. B. Leichtentritt.—p. 375.
For and Against Adler's Individual Psychology. E. Flusser.—p. 378.
*Tannic Acid in Diagnosis and Treatment of Gastric and Duodenal Ulcers. H. Rosencrantz.—p. 381.
*Prevention and Treatment of Eclampsia: Observations in 111 Cases. P. Rissmann.—p. 383.
Speedy and Active Refilling of Vascular System After Profuse Hemorrhages by Means of Injection of Dextrose Solution. E. Simenauer. —p. 385.
*Cause of Heartburn. J. Bartlakowski.—p. 388.
Vaccine Therapy in Brucella Abortus Infection. H. J. Lang.—p. 389.
Hallux Rigidus: Its Nature, Relation to Trauma and Treatment. Flossbach.—p. 389.
Blood Sugar Curve as Indicator of Fitness for Athletic Activities. F. Deutsch and E. Weiss.—p. 391.
Estimation of Heat Effect in Diathermy Treatment. E. Freund and F. Benz.—p. 392.

Tannic Acid in Diagnosis and Treatment of Gastric and Duodenal Ulcers.—Rosencrantz discovered in the tannic acid test a method that is valuable not only for the diagnosis but also for the treatment of gastric and duodenal ulcers. If the reaction is positive, that is, if the pain ceases shortly after the administration of 0.1 or 0.2 Gm. of tannic acid, an ulcer is present. In case of a negative reaction, with the pain persisting or diminishing only slightly, roentgen examination is indicated. If roentgenoscopy gives negative results in cases with persistent pain, an ulcer is not present. If, however, the pain is slightly diminished and the roentgen examination does not indicate an ulceration, then it is probable that an ulcer exists and other diagnostic methods should be resorted to. The author thinks that the tannic acid test, combined with careful observation of the clinical aspects, especially if the reaction is positive, is the most comprehensive of all the methods that are employed in the diagnosis of gastric ulcers. Concerning the therapeutic value of tannic acid, the author states that complete cure has been obtained in simple gastric and duodenal ulcers; good effects have been noted in gastritis and in complicated gastric and duodenal ulcers; that is, in ulcerations with large niche formations, with involvement of the serous coat of the stomach, of the rest of the peritoneum or of other organs, such as the gallbladder and the pancreas. The tannic acid was given in the form of tablets containing 0.25 Gm. of tannic acid every two hours during the day, that is, from six to eight doses. No other treatment was given. In patients with cancer of the stomach, of the colon or of the rectum, the administration of tannic acid resulted in a decrease in the hemoglobin content. In all these patients the cancerous growths were in an advanced stage. The tannic acid effected a diminution of the pain and the patients felt comparatively well. However, they gradually became more cachectic and died.

Prevention and Treatment of Eclampsia: Observations in One Hundred and Eleven Cases.—Rissmann found that wrong and excessive nutrition of the pregnant woman is an essential factor in the development of eclampsia. He recommends a largely vegetarian diet and forbids the use of strong spices and alcoholic drinks. It has been noted that in pregnant women the albumin of eggs, when eaten raw, passes more readily into the blood and urine than in other persons. Raw eggs are therefore not advisable and strong cheeses should likewise be avoided. In case of disturbances in the metabolism the author recommends, besides the special diet, the administration of medicaments, especially of vitamins and hormones. As the main factors in the therapy of eclampsia the author stresses starvation, venesection (the amount of blood withdrawn should be about 500 cc.) and repeated intramuscular injections of phenobarbital, 0.4 Gm. into the chest or arm every two, four or six hours, determined by the frequency of the eclamptic attacks. The author does not give more than 1.6 Gm. in the course of twenty-four hours. After the first difficulties are overcome, each case requires individual treatment. The process of birth should be hastened. In some instances cesarean section is necessary. After each eclamptic attack, both before birth and during the puerperium, the administration of oxygen is advisable. Following delivery, rectal drip infusions of 1 liter of a 5 per cent sugar solution are helpful.

Cause of Heartburn.—According to Bartlakowski, it is generally assumed that the hydrochloric acid content of the stomach is the cause of heartburn. As a result of an anomaly in the motility of the cardiac sphincter, the hydrochloric acid finds its way from the stomach into the esophagus. This theory was investigated by several authors and some of them arrived at different theories concerning the pathogenesis. Being subject to frequent attacks of heartburn, the author studied this problem on himself. He observed that whereas some patients describe heartburn as a burning sensation passing from the stomach upward, others, including himself, feel the burning pain mainly in the pharynx. He is free from the sour eructation and vomiting which in some persons occur with heartburn. The various antacid remedies, especially those that are given in tablet form and dissolve only in the stomach, were not effective in his case. However, if he dilutes sodium bicarbonate or a magnesium preparation and drinks it slowly, the heartburn disappears at once. Accordingly, he reasons that in his case the heartburn must be caused by anatomic conditions in the esophagus. It has been found that in many persons islands of gastric mucous membrane, which have the same secretory capacity as the mucous membrane of the stomach, are found in the esophagus. The size of these islands varies. They may be found in about 70 per cent of all human beings. The author found them in six out of ten cases. He thinks that these producers of hydrochloric acid, besides other causes, are doubtless an etiologic factor of heartburn, especially in those instances in which the heartburn is localized in the region of the pharynx.

Monatsschrift f. Geburtshülfe u. Gynäkologie, Berlin

84: 241-318 (March) 1930

*Incidence of Relative Lymphocytosis in Women During Menopause. J. Sakheim and H. Lehfeldt.—p. 241.
Tolerance of Uterus Duplex Gravidus in Repeated Curettage of Nongravid Half. S. Itzkin.—p. 249.
*Puerperium Following Multiple Pregnancy. N. A. Gidalewitsch.—p. 261.
*Ultraviolet Irradiation of Mammary Glands. H. Küstner and R. Börner. —p. 275.
Gastroschisis in the New-Born. B. Kleiner.—p. 281.
Centers for Collecting and Dispensing Mother's Milk. M. E. Kayser. —p. 293.

Incidence of Relative Lymphocytosis in Women During Menopause.—On the basis of their observations in fifty-one women in the menopause, Sakheim and Lehfeldt state that in a large percentage of climacteric women there is a relative lymphocytosis. They believe that the lymphocytosis is caused by a thyrotoxicosis. In support of their theory they call attention to the frequency with which high and variable blood pressures are found in women during the menopause and the good results of detoxicating and sedative methods of treatment.

Puerperium Following Multiple Pregnancy.—In a study of the clinical histories of 574 cases of multiple pregnancy, Gidalewitsch found that in the puerperium following multiple pregnancy complications occurred much more frequently than they do in the puerperium following single pregnancy. The incidence of febrile diseases was three times as great, increases in temperature above 38 C. (100.4 F.) being noted in 32.8 per cent of the cases. The mortality following multiple pregnancy was ten times as high as the mortality following single pregnancy.

Ultraviolet Irradiation of Mammary Glands.—Küstner and Börner used ultraviolet irradiations of the mammary glands in twenty-one lactating women to increase the flow of milk. Contrary to the observations of several other investigators, they did not note an increase in the flow of milk sufficiently marked and sufficiently constant to permit them to ascribe to the irradiations a galactagogue action.

Monatsschrift für Kinderheilkunde, Leipzig

46: 193-288 (March) 1930

Kala Azar: First Case Observed in Palestine. B. Ostrowski.—p. 193.
Intrapulmonary and Extrapulmonary Cavities in Children: Roentgen Diagnosis. H. Kleinschmidt.—p. 205.
*Feer's Sympathetic Neurosis. M. Frank and E. Podvinec.—p. 221.
*Hypermineralization Following Intensive Antirachitic Treatment. H. Opitz.—p. 228.
Neuromuscular Irritability in Infants. A. Peiper.—p. 237.
Racemose Livedo: Case. P. Frick.—p. 257.
Pyodermia in Nurslings: Treatment. K. Ochsenius.—p. 260.

Feer's Sympathetic Neurosis: Bladder Disturbances.—Frank and Podvinec report a case of Feer's sympathetic neurosis in an infant, aged 3 months. In addition to the characteristic symptoms of this disease there was present a disturbance in the functioning of the urinary bladder. For three days the child did not void any urine spontaneously. By means of pressure on the abdomen and catheterization, however, the authors demonstrated that the bladder contained urine. Roentgen examination following the injection of a contrast medium revealed a marked distention of the bladder. The authors believe that the retention of urine was caused by hyperexcitability of the sympathetic nervous system, which resulted in relaxation of the external layer of the muscular tunic of the bladder.

Hypermineralization Following Intensive Antirachitic Treatment.—Opitz describes twins, aged 1 year and 3 months, who, although they had not presented any signs of rickets, had been given intensive antirachitic treatment prophylactically (viosterol, a cod liver oil preparation containing phosphorus, and ultraviolet irradiations). When examined by the author, neither of the infants showed clinical or roentgen signs of rickets, but at each end of the diaphysis of the long bones of both infants there was a wide band shaped shadow, which on more careful observation was found to consist of three narrower band shaped shadows separated by lighter zones. Dark shadows were noted also in the bones of the pelvis, the scapulae, the clavicles, the transverse processes of the vertebrae and the adjacent ends of the ribs, the distal and proximal epiphyses of the phalanges and at the base of the cranium. Although the hypermineralization at the end of the long bones had not retarded the growth of the children, the author believes that, in consideration of a possible harmful hypermineralization of the internal organs, great care should be exercised in the use of irradiated substances in the prophylaxis of rickets.

Münchener medizinische Wochenschrift, Munich

77: 473-520 (March 21) 1930

Studies on Physiology of Sex: Effect of Hormone of Anterior Lobe of Hypophysis on Immature Male Mice. M. Borst, A. Döderlein and D. Gostimirović.—p. 473.
Diagnostic Provocation of Cancer. S. Beck.—p. 475.
Interferometry in Early Diagnosis of Cancer. E. Lendel.—p. 476.
*Prognosis in Renal Sclerosis Based on Chemical Examination of Blood: Significance of Early Determination of Increase of Aromatic Intestinal Putrefaction Products in Blood. E. Becher.—p. 477.
Differential Diagnosis of Congested Kidney. F. Lebermann.—p. 479.
*Relation Between Diabetes and Disturbances of Biliary Tract. Bingel.—p. 481.
Researches with Graduated Photometer: Determination of Paternity, Mother-Child Reaction, Pregnancy Reaction. E. Rabau.—p. 483.
*Pathogenic Agent in Psittacosis. K. L. Pesch.—p. 484.
*Treatment of Intermittent Claudication. H. Schauder.—p. 485.
Reducing Cures in Practice. A. Kimmerle.—p. 487.
Criticism of Tests for Cardiac Function. E. Spohr and H. Lampert.—p. 491. C'cn.
Development of Adherent Lenses: Claim for Priority. A. E. Fick.—p. 495.
Is Ingestion of Particles of Glass Injurious or Harmless? E. Lüdecke.—p. 496.

Prognosis in Renal Sclerosis: Significance of Intestinal Putrefaction Products in Blood.—Becher directs attention to the fact that in former researches it had been demonstrated that the renal insufficiency in acute nephritis without anuria differed markedly from the renal insufficiency in patients with contracted kidney. In acute nephritis the blood shows early an increased content of urea and uric acid, whereas the intestinal putrefaction products, such as indole, phenol, cresol, diphenyl, aromatic oxygen acids and indolacetic acid, are not at all increased, or appear comparatively late or only in minute quantities. It has also been found that in acute nephritis a retention of urinary pigment in the blood, especially of urochromogen, does not become manifest. The specific gravity of the urine may be increased, but it retains its color, because the conversion of chromogens into pigments is not disturbed. However, in renal insufficiency of patients with contracted kidney the conditions are reversed. In the blood the aromatic intestinal putrefaction products are found earlier and in larger quantities. Occasionally, but not frequently, they are already increased at a time when the urea content of the blood is still normal. In the serum a number of chromogens, as urorrhodinogen and urochromogen, may be demonstrated. The urine is lighter in color, and its specific gravity is about 1.010. It contains numerous chromogens; however, their conversion into coloring matter is disturbed. Recent investigations indicated that in muscular activity the uric acid formation is increased. It is probable that the cardiac action likewise causes formation of uric acid. Since in essential hypertension and in acute nephritis the cardiac action is increased, it may be assumed that in benign renal sclerosis, and to a certain degree also in acute nephritis, the increased uric acid content of the blood is not always caused by an insufficient elimination but may also be due to an increased formation. However, additional investigations will be necessary to demonstrate this definitely. Many observations indicate that the retention of intestinal putrefaction products is an important factor in the pathogenesis of uremia. Differences in the blood conditions that resemble those existing between acute nephritis and contracted kidney also exist in various forms of sclerosis. If in the course of a benign renal sclerosis the aromatic substances gradually increase, that is, if the xanthoproteic and indican values in the serum increase, this is an early indication that the sclerosis is becoming malignant. In the course of a benign sclerosis there sometimes occur isolated increases in the urea and in the uric acid content of the blood. However, these conditions alone are not indicative of a malignant sclerosis. If urea and uric acid alone increase, the renal disturbance does not necessarily lead to contracted kidney.

Relation Between Diabetes and Disturbances of Biliary Tract.—Stimulated by the investigations of Katsch and Wöhrmann, who found that a relation exists between diabetes and disturbances in the biliary tract, Bingel made observations on 114 diabetic patients and on 183 patients with disorders of the liver and of the biliary tract. He found that 17 per cent of the 114 diabetic patients had symptoms in the epigastric region that indicated either a former or a simultaneous disorder in the biliary system. In three instances it could be definitely proved that diabetes had developed as a secondary disease. Among 183 patients with disturbances of the liver and its excretory ducts, a temporary glycosuria was found in only three instances. In juvenile and in senile diabetic patients, a correlation between the two diseases is evidently rare. However, during middle age it is apparently more frequent than is usually assumed. The author thinks it necessary that the problem should be studied on a larger clinical material. He advises that especially in diabetic patients the anamnesis should tell whether the patient has previously suffered from disorders of the liver or of the bile ducts.

Pathogenic Agent in Psittacosis.—Pesch describes investigations for the detection of the pathogenic agent of psittacosis. He made bacteriologic and serologic tests on material from patients with psittacosis and on the cadavers of those who had died from the disease. He also made experiments on parrots. He comes to the conclusion that neither bacteria of the paratyphoid group nor streptococci are the cause of psittacosis. In accordance with Elkeles (*München. med. Wchnschr.* **77:**139 [Jan. 24] 1930; abstr. THE JOURNAL, April 12, 1930, p. 1186) he states that there is an essential difference between the psittacosis that parrots transmit to human beings and the contagious disorder occurring in parrots, which is caused by *Bacterium paratyphosum-enteritidis* Breslau. In the heart blood of the birds that had died of the disease, spirochetes could not be detected either in the dark field or in the Giemsa preparation. Because of the negative microscopic results and of the negative cultures, the author advances the theory that the disease is caused by an invisible filtrable virus. The following observa-

tions support this theory: 1. The microscopic tests gave negative results in all birds that had died of the disease. 2. The cultures were nearly all negative, aerobic as well as anaerobic. Usually, in the few instances in which bacteria were found, they either were due to impurities or were putrefactive bacteria, but they were not the causative agent of psittacosis. 3. With bacteria-free filtrates of the heart blood or of the liver from birds that had died of the disease, it was possible to infect eleven other parrots. Aerobic and anaerobic cultures from the heart blood or from the liver of the animals thus infected likewise remained sterile. That contact infection is possible is proved by the fact that two healthy birds contracted the disease when they were brought into an unsterilized cage in which a parrot had died. That not all the parrots inoculated contracted the disease is explained by the author as being due to the fact that they had all been raised in Europe. He thinks that the psittacosis virus is perhaps not so virulent for these birds as for those that have been raised in tropical regions.

Treatment of Intermittent Claudication. — Schauder reports the case of a patient who for more than a year had suffered from severe intermittent claudication and from arteriosclerosis. The usual treatment with iodine, glyceryl trinitrate and alternating baths either failed completely or brought only temporary improvement. Then an injection treatment with a circulation hormone was instituted. This circulation hormone was first demonstrated by Frey and Kraut. They extracted it from the urine. The hormone is produced in the pancreas, circulates in the blood stream and is excreted unchanged in the urine. Animal experiments have proved that it has a vasodilator effect on the peripheral vessels. It also causes lowering of the blood pressure, increase in the pulse amplitude and sometimes increase in the number of heart beats. The decrease in the blood pressure is caused not by a weakening of the heart action but rather by the vasodilator effect. This factor seemed especially significant in the case reported. The patient was given twice daily subcutaneous injections of the circulation hormone. At first only one-half unit was administered. Gradually this amount was increased to 2 units. The treatment was continued for two weeks. After its completion the patient was again able to take walks without being troubled by pains. At first slight attacks of paresthesia recurred, but they disappeared gradually and the patient was able to walk long distances without difficulty. The good results of this hormonal therapy have persisted for thirteen months.

Wiener klinische Wochenschrift, Vienna

43: 353-384 (March 20) 1930

Significance and Problems of General Pathology: Its Relation to Pathologic Anatomy, to Physiology, to Clinical Pathology and to Therapy. F. Standenath.—p. 353.
Melanin Reaction in Urine Following Exposure to Sun Rays. E. Risak. —p. 358.
Treatment of Bronchiectasis During Childhood. F. Basch.—p. 361.
*Insulin in the Treatment of Fresh and of Old Wounds. M. Lévai.—p. 362.
Cervix Uteri: Its Structure, and Significance and Mechanism of Its Dilation. G. Weidenbaum.—p. 365.
Constitutional Anomalies of Thorax and of Diaphragm. K. Hitzenberger. —p. 367.

Insulin in Treatment of Wounds.—Lévai recommends the local application of insulin for the treatment of fresh as well as of old wounds. The wound is covered with a layer of gauze which has been moistened with about 5 units of insulin. The gauze is fastened with strips of adhesive tape so that air can reach the wound. The author stresses that wounds should never be covered so as to exclude the air completely. He found that the insulin hastened the healing process. The hormone evidently influences the formative elements of mesenchymal origin. However, its effect on epithelization is only slight or entirely absent. The wound therapy with insulin proved to be harmless. In cases in which as much as 40 units was applied, hypoglycemia was not noted. The granulation surfaces absorb the insulin either not at all or only in minute quantities. The insulin should be applied to the bandage rather than to the wound.

Kazansky Meditsinsky Jurnal, Kazan

26: 235-336 (March) 1930

Acquired Immunity to Syphilis. V. M. Aristovsky.—p. 239.
Pneumoscope: Diagnostic Value. R. I. Shtekelis.—p. 255.
*Erythrocyte Sedimentation Test in Rheumatic Polyarthritis: Prognostic Value. M. L. Meerovitch.—p. 259.
Use of Beer in Developing Conditioned Reflex. A. Y. Pleshchitzer.—p. 262.
Diaphragmatic Hernia: Carcinoma of Stomach. A. I. Kondrashkin.—p. 267.
Study of Functioning of Kidney by Use of Sodium Salicylate. L. P. Krayzelburd.—p. 272.
Tendovaginitis Crepitans in Metal Workers. A. I. Ivantchenko.—p. 274.
Local Anesthesia Used in Operating on Fibroma at Base of Skull (Postnasal Wall). I. V. Domratchev.—p. 278.
Suppurative Appendicitis. M. P. Shatkisky.—p. 281.
Treatment for Inflammation of Vagina. T. S. Andreytchuk.—p. 283.
Prophylaxis of Chickenpox. M. A. Degtyareva.—p. 287.
Endemic Goiter. M. P. Andreev and M. G. Ulyanov.—p. 290.
Occupational Dermatitis in Peasants. K. A. Promachin.—p. 299.

Sedimentation Test in Rheumatic Polyarthritis.—Meerovitch, on the basis of his study of ninety patients, concludes that in rheumatic polyarthritis the erythrocyte sedimentation rate varies between 0.5 and 1.2 cm. in an hour, depending largely on the acuteness of the disease. The erythrocyte sedimentation rate is reduced when the patient is treated for a rheumatic polyarthritis, but it is not reduced in proportion to the rapidity of the patient's recovery. If the patient is released from treatment before the erythrocyte sedimentation rate has reached normal, symptoms of rheumatic polyarthritis recur three weeks after institution of the first treatments; it is therefore necessary to treat the patient until the erythrocyte sedimentation rate is normal to prevent a recurrence of the symptoms.

Nederlandsch Tijdschrift voor Geneeskunde, Haarlem

74: 1021-1176 (March 1) 1930

Malignant Diphtheria. E. Gorter.—p. 1022.
*Influence of Vitamins A, B, C and D and of Calcium and Phosphorus on Recovery from Bone Fractures. M. N. Roegholt.—p. 1028.
Postvaccinal Encephalitis with Absence of Local Reactions: Together with Remarks on Pathohistology of Postvaccinal Encephalitis. A. Querido.—p. 1047.
Surgical Treatment of Fistulas of Pancreas. R. Brummelkamp.—p. 1056.
What Is a Fully Developed Pock Pustule? What Is a Good Result in Smallpox Vaccination? D. J. Kuiper.—p. 1062.
Donders as Pathologist and Anatomist. R. de Josselin de Jong.—p. 1064.
Smallpox in Eighteenth Century: Vaccination. J. J. van der Kleij. —p. 1084.

Influence of Vitamins A, B, C and D and of Calcium and Phosphorus on Recovery from Bone Fractures.—Roegholt concludes from his observations that recovery from bone fractures in India in natives and in those partaking of the same diet is slower than in Netherlanders in the Netherlands (or in India, if they follow a European diet). Vitamin A has no effect on regeneration of bone fracture, but possibly a lack of vitamin B and of calcium and phosphorus is responsible for the slower regeneration of bone fractures in the natives.

Hospitalstidende, Copenhagen

73: 1-28 (Jan. 2) 1930

*Gonorrheal Arthritis. S. A. Holbøll.—p. 18.
*Myxedema with Cerebellar Symptoms: Case. E. Rud.—p. 25.

Gonorrheal Arthritis, Particularly with Regard to Complement Fixation Reaction for Gonorrhea.—Holbøll says that in 230 cases of nonsurgical arthritis, a clinical diagnosis of gonorrheal arthritis was made in twenty-nine, all of which gave a positive complement fixation reaction for gonorrhea; among the other cases there was a weak or doubtful reaction in only four. The reaction does not become positive until the beginning of the second week of the disorder, rising then to a maximum that varies in the different cases. The reaction was positive in four patients with a history of gonorrheal arthritis from five to seven years ago who now present symptoms of chronic arthritis.

Myxedema with Cerebellar Symptoms: Case.—In Rud's instance of myxedema in a man, aged 69, it is believed that the condition originated on an arteriosclerotic basis, roentgen examination having established calcifications in the superior thyroid artery. The marked cerebellar symptoms—asynergy, dysmetria, ataxia and adiadokokinesis—yielded to treatment with thyroidin.